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Erratum:-Misoprostol in obstetrics & Gynaecology. **JK-Practitioner 2005; 12(2) 94-97** Read doses of misoprostol in micrograms instead of milligrams or grams as mentioned wrongly in the article.

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Erratum:-Mini- Appendectomy (An experience of 100 cases) **JK-Practitioner 2005;12(1):11-13.** Page 11 Read author as Sanjay Kumar Bhasin instead of Sanjay Kumar Shasin.

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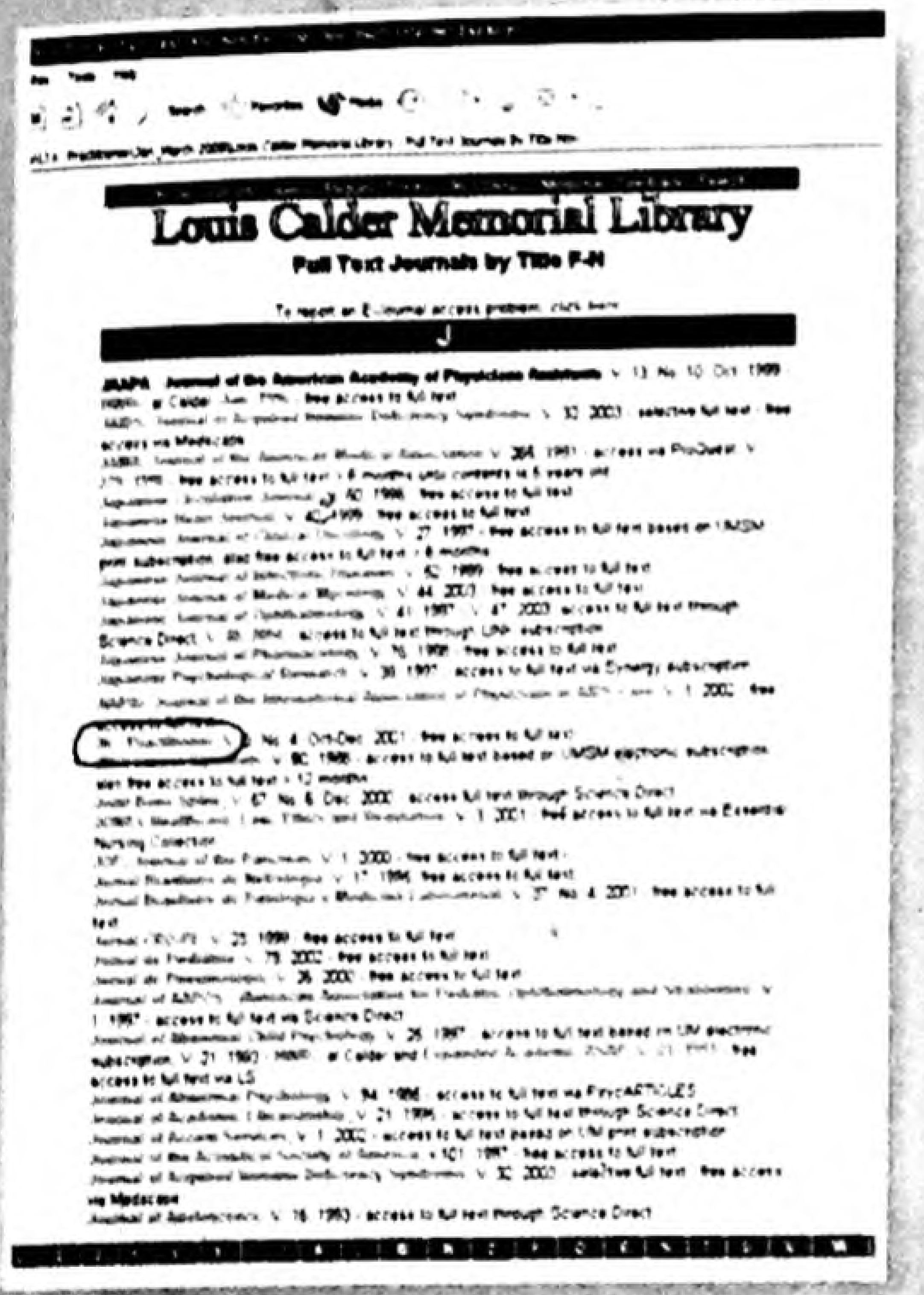

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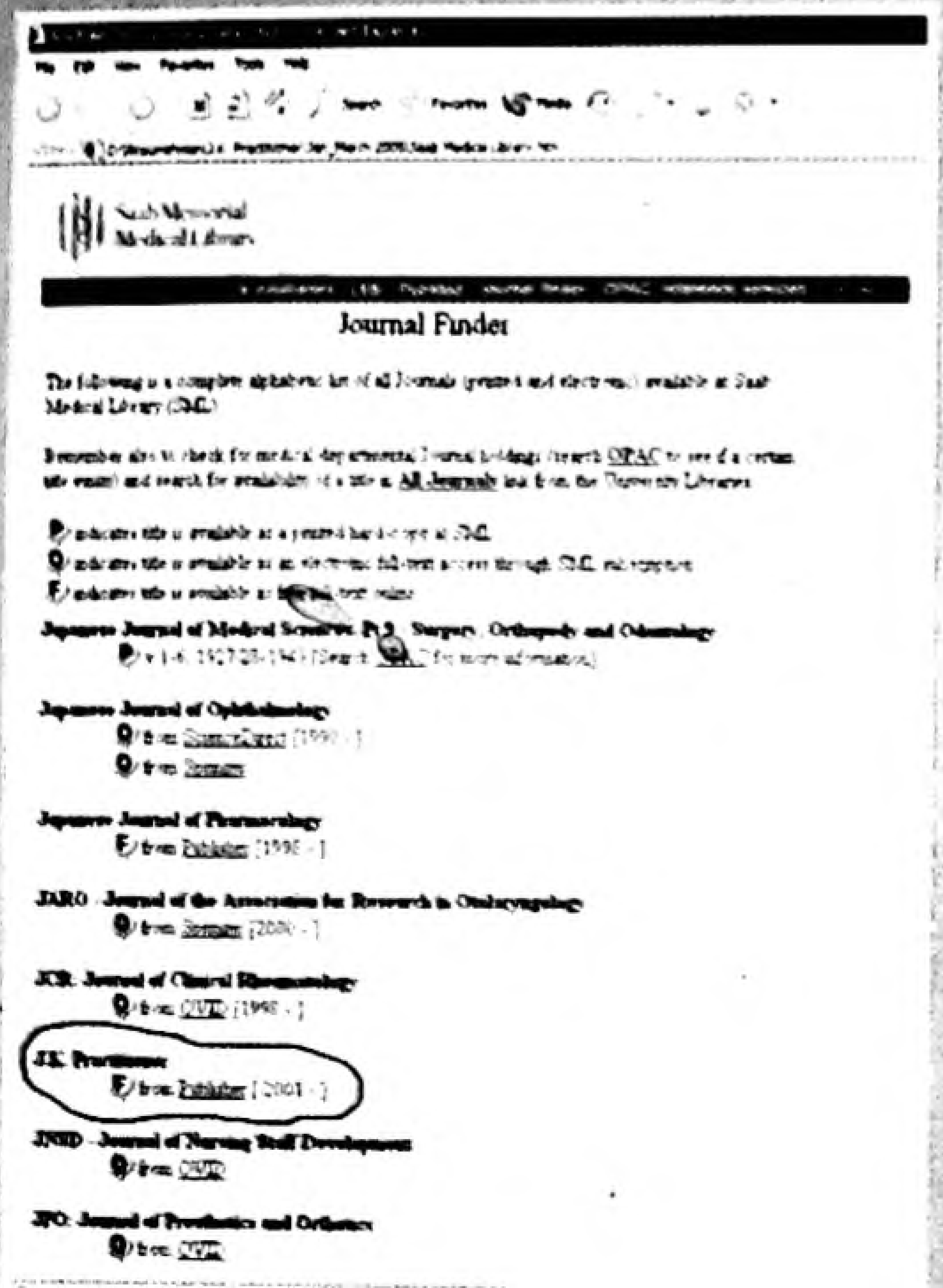

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There is a changed cover, as regular readers may have noted, the red is gone (not completely, though). A small change in the format of the articles and fonts has been made to present the journal as a more attractive package, in conformation with the international standards. I hope the researchers will like the changes. We are open to suggestion on any aspect of publishing.

I take this opportunity to once again thank our reviewers and the editorial board members particularly from outside India whose interest, contributions and suggestions has made JK-Practitioner, what it is today.

Wishing you a happy 2005.

GM Malik
Chief Editor

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Vice-Chancellor

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No: F.1(VC-KU)/05/
Dated: 24-01-2005

I am glad to know that we are shortly going to have another issue of the well-know journal in medicine namely JK-Practitioner. I have had occasions to go through some of the research papers of general interest published in this Journal and am glad to say that I have found these to be of high quality. It is also pleasing to note that several stalwarts in the field, most of whom have been alumni of our University, have been associated with this publication in one capacity or the other. That should further enhance its quality and usefulness. As a student of Social Science, however, I cannot resist the temptation to suggest that the journal must also devote space to medical ethics and humanities because the most competent doctor may not necessarily be the best doctor if not properly oriented in this field.

I wish the Journal all the best in its noble endeavour of promoting medical education.

24/01

(Prof. Abdul Wahid)
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JK-Practitioner

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Review

Practical Nuances of Conducting Clinical Trials in Our Setup

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Introduction

Clinical research or research conducted in humans is not a new entity although it has gained a lot of importance recently. Avicenna (980-1037), who was amongst the earliest clinical researchers, was a scientist and a philosopher and clinical research is really a science as well as an art.

The status of clinical research is India is similar to what used to be that of IT (Information Technology) with one major difference that whereas the IT boom has somewhat declined (predictably, some would say), clinical research can never face such a situation (unless all diseases decide to leave mankind one fine day- very unlikely) because of its nature.

Clinical trials are the most important component of clinical research. A clinical trial is defined as a "carefully and ethically designed experiment in humans with the aim of answering some precisely framed question.........." (not the author's definition but Sir Bradford Hill's, who is considered to be the father of randomized, controlled clinical trials). It may be added that it is an experiment where an active intervention is done, for example, administration of a drug, or a procedure. If there is no intervention (from the investigator's side), it becomes an observational study (it is still clinical research).

Let us now try to understand the term "randomized, controlled, clinical trial". "Controlled' simply means that there is a comparator (control) group in the study, it can be a placebo, or an active drug (the old gold-standard drug). "Randomized" denotes the fact that the allocation of patients to the different groups (new drug vs. placebo or new drug vs. old drug) was done totally at random. This means that the investigator does not know to which group the next patient will go. Randomization is done with the help of a computer or calculator or random number tables (usually given at the end of statistics textbooks). Randomization is considered by most authorities to be the single most important advance in the science of clinical trials as it takes care of the investigator bias.

For the sake of completeness, we go to the concept of blinding. In a single-blind trial, either the patient or the physician knows which drug the patient is on; whereas in a double-blind trial, neither the physician nor the patient knows about treatment allocation.

We sometimes use the terms triple- and quadruple-blind studies. These are not standard terms (we like to use them anyway) but carry an important message. Triple-blind means that a third person is also blind; this third person could be a radiologist looking at the CT scans or a pathologist reporting slides. Quadruple-blind extends the concept of blinding to a fourth person, usually the statistician (or anyone doing the calculations), who is also kept blind to the treatment allocation.

Scientific literature is full of reports of clinical trials, a Medline search with the word "clinical trial" generates over 1,00,000 citations and approximately 50 citations are added each month. Most of these trials are conducted in the developed countries and the textbooks describing clinical trials are published abroad. There are however several nuances of conducting clinical trials in developing countries that are the topic of the current review. In general this article is written from the perspective of an investigator, although some remarks may also be pertinent to the drug companies.

CLASSIFICATION OF CLINICAL TRIALS

Although several classifications of clinical trials can be found in standard texts, an indigenous classification, which is simple and understandable will be used here, according to which there are only two major types of clinical trials:

- Sponsor-initiated

- Investigator-initiated

Investigator-initiated trials can be further sub-classified according to whether the investigator is a clinician or a basic scientist.

Sponsor-initiated Trials

Sponsor-initiated trials are seen in India when a representative from a drug company comes to a clinician with a ready-made protocol (prepared in the US or any other developed country, or in India) and asks him (I will henceforth address the investigator as "he": for convenience sake only, and no gender bias is intended) to conduct a trial according to that protocol, for which, of course, the company compensates him (sometimes huge amounts), typically "per patient enrolled". These are usually phase III trials, required to be conducted by the company in order to get permission from the Drug Controlled General of India (DCGI; the chief regulatory authority equivalent in principle to the US FDA) to market the drug. Such trials are conducted at (usually) four centers (one each in North, South, West and East) in India and typically, about 100 patients are enrolled. Strangely these trials are sometimes uncontrolled, which really doesn't make them particularly attractive as uncontrolled trials have little scientific credibility.

Multinational companies are now approaching the Indian investigators (usually leading consultants in their respective fields) with elaborate protocols and case report forms (CRFs) as clinical research is being increasingly outsourced to India. These sponsor-initiated mega-trials, conducted sometimes in several thousand centers, generally are a part of the new drug development program. To meaningfully gain from this outsourcing of clinical research (like the IT Industry), we as investigators have to be updated with respect to recent advances in this field, we have to familiarize ourselves with several new (at least for some of us) terms, and we need to ask the right questions before agreeing to participate in a sponsor-initiated clinical trial; all this makes the role of the investigator critical.

Role of the Investigator in Sponsor-initiated Trials

The first question is "Who should be the investigator?" Now this is for the sponsor to decide and there are several facets of such a choice. Although choosing a more-experienced and renowned investigator may be prestigious to the company, and he or she may have a large number of patients, such an investigator may not be able to devote the required time and effort when the trial starts or even before that. On the other hand, the less seasoned is the investigator, the less secure he or she feels about various study issues and he may not have enough patients, but, on the positive side, he may be enthusiastic about participating in clinical research (which adds value to his CV) and will surely have more time.

Choosing the site is related to the choice of the investigator, but large cities with good facilities are preferred by companies. This is proving a hindrance in spreading clinical research to smaller towns. Decentralization of research is the need of the hour as it holds the key to gaining maximum advantage out of it.

The next issue is that whether the investigator should be a clinician or a basic scientist (a pharmacologist, for example). Intuitively, a clinician is a better choice, since he has the patients and the formula is very simple: "no patients no study". However, there are several subtleties involved. A pharmacologist in liaison with a clinician is not at all a bad choice since pharmacologists may be more dedicated to the trial, and they may be able to devote more time. The practicalities of the trial like applying to the ethics committee, and following it up, filling of CRFs, handling and storing the data, blinding issues, etc. may be more suitably handled by a research person than a busy clinician (not at all because of lack of effort or capability, but mostly because of time constraints). This holds true not only for the consultants but also for the residents (who are the 'labor class' and will be doing a lot of 'dirty work', everyone knows how busy the clinical side residents are). For these reasons, a large number of companies are now approaching pharmacologists with request to conduct their trials. However, this should not be seen as a competition but in the spirit of teamwork with each member playing his role: this will benefit both the clinicians as well as the clinical researchers from the basic departments.

Irrespective of who the investigator is, there are three key questions that he should ask himself before agreeing to participate in a trial. Firstly, whether he will be able to provide the numbers (of patients) requested by the company. Remember that the company person knows the Lasagna's law (i.e. divide the number of patients promised by 10). This does not mean you over-project the number, say by a factor of 100, to take care of the old, and maybe outdated (you may think so) law. Never say "I am seeing twenty patients with this disease per day" when actually only one and a half patients may be visiting your OPD per month. We think it is better to "under-promise and over-deliver" rather than the other way around since it helps in building long-term relations with the industry. And remember, the world of industry is a small one, and any news, good or bad, travels rapidly across it.

The second most important issue that needs your attention is addressed when you receive the protocol. Make sure the study design is good, look at the adequacy of doses of the comparator drugs, think whether placebo (if used in the trial) is justified, pay attention to the safeguards of the patients (for example, rescue medications), check out the thoroughness and appropriateness (some may be unnecessarily bulky although you can do little to change anything) of CRFs, payment aspects (you can bargain with the company on this issue), confidentiality issues, publication rights (which are usually with the company, which is why we do not much like sponsor-initiated trials), patents and inventions (again the company's prerogative), indemnification and insurance issues (the company's duty), and issues like handling of subject injury. Again, it is an area where it is best to work as a team and ask someone else (preferably from the other department) to look at the protocol and discuss freely.

A brief word of caution on payment aspects. For investigators working in institutions, it is not recommended to take the money in your personal account but take in the name of a central authority (like the principal/director of your institution). If some of it is left un-utilized, you can use it for the upliftment of your department.

Another item in your checklist when you are communicating with the company person should be the letter of approval from the regulatory authority (drug controller). You are unlikely to get your trial approved from your ethics committee without this letter.

Signing the Agreement and Beyond

Once you are satisfied with the documents given by the company and the financial aspects have been agreed upon, you can go ahead and sign the agreement. It is time for action now as speed is the name of the game for the company. It has been estimated that a delay of one day in marketing a compound may amount to losses up to US$ 1 million.

Therefore, within a few days you can expect a company monitor to visit your site (one reason why such trials are conducted in big cities is that they have 5-star hotels where monitors or other company people prefer to stay), and you will receive the drug supplies as well as the CRFs. The company will also provide you with a locker, refrigerator and any diagnostic kits, if required. It is the investigator's duty to send the protocol for approval from the institutional ethics committee as this process can be time-consuming and without this you can not start recruiting (the company monitor will compare the date of recruitment of the first patient with the ethics committee approval date). If there is no ethics committee, then you have to get the protocol reviewed and approved by an outside ethics committee.

Once everything is complete, it is the time for the trial to start.

The Actual Conduct of the Trial

Hopefully, the processes for recruitment of patients have been finalized by now. This means that the concerned department knows about the trial (we assume you are collaborating), you will have to personally meet the head of the department informing him that the trial is starting (a useful adage is: "not to bypass the boss"). All the faculty and residents also need to be informed and you must put notices in the OPD rooms (for example, if the trial is an out-patient one). The faculty member and one (or even two) residents must be allocated the responsibility of the trial and they must thoroughly know the inclusion/exclusion criteria, the treatment protocols, the investigations required and so on as that all the patients are routed to them.

The real problems begin when the trial is started and most often you will find that the day you start the trial, the patients seem to disappear (keep in mind some of Murphy's laws). Leaving aside magic, evil spirits or any other kind of divine intervention, the most probable cause of poor recruitment is that the inclusion/exclusion (I/E) criteria are very stringent. Unfortunately, despite reviewing the protocol thoroughly, some points may be missed, which then lead to such problems. During the conduct of a novel antiepileptic drug trial, when the recruitment was slow (and the company representative will be calling you all the time politely asking, "What is the number recruited?" She [company people are definitely showing some bias if you go by the number of females who now work for companies] will also tell you that at so-and-so center, they have already recruited 20 patients when your score is, say 5), we decided to go through the I/E criteria once again. One of the inclusion criteria was "patients having more than 4 seizures in the past 6 weeks". It was unlikely to find patients to be so poorly managed (to be having so many seizures) in our epilepsy clinic, and so the recruitment rate remained low.

The next major problem is that of patient follow-up. Surprisingly, even when the investigator is giving free medications to the patients, and the laboratory tests are being done free of cost, patients fail to turn up for repeat visits. We routinely take our patients' telephone numbers (everyone seems to have a mobile phone now) or any other contact information which would help us call them. Even then 100% follow-up remains a dream. There are many reasons for this; ignorance, illiteracy, poverty and misleading propaganda about the excellent safety and efficacy of traditional medicines are chief culprits that turn patients away. Please also make sure that your (means your resident's, poor residents!) contact phone number is given to all the patients and it is accessible 24/365 (24 hours a day, 365 days a year, i.e., for the duration of the trial).

The motivational level of the investigator and his team members is inversely proportional to the number of problems faced and the amount of time the trial drags on. It helps to have at least one member in the team who can persevere and also lift the spirits of others. Of course, company people will be visiting regularly, religiously reminding you to expedite the trial.

Investigator-initiated Trials

Most of the above discussion is relevant here; however, there are some important differences. If you thought that it is difficult to conduct sponsor-initiated trials, think again because trials that you initiate yourself are much more effort (both mental and physical)- intensive since you do not get readymade protocols, CRFs, and you have to arrange drug supplies, matching placebos (if needed), and above all, funds.

On the positive side such trials are more scientifically satisfying as you are probably trying to address some pertinent and current problem the answer to which has the potential to help a large number of patients. However, that is about the only reward you get, and no financial/materialistic gains are possible. I can feel some investigators think, "This is not my cup of tea" and I recommend they read no further.

If you have a little bit of socialistic bent of mind and are continuing to read, let me enlighten you about another advantage of such trials, and that is, we remain independent of the company (even if results are negative, we are free to go ahead and publish-something academically oriented people look forward to), quite unlike the company-sponsored trials.

Investigator-initiated Trials: From Idea to Print

Here we conceptualize the idea (as opposed to the company), we make the protocol and we plan the trial. For example, a thinking student comes and says, "Sir, ABC drug may have some effect in XYZ disease". So, we sit down, and search for any literature available; the pharmacological actions of the drug are scrutinized in context of the disease in question. Once we are convinced with the scientific rationality of the trial, the next step is to discuss with the clinician and prepare the first draft of protocol. An advice that comes free of cost along with the article is to spend a lot of time with the clinician explaining to him the pharmacology of the compound (especially if it happens to be out of his specialty and he is not familiar with it) and discussing the protocol. The time spent at this stage is really worth its weight in gold.

Next comes arranging the drug (and placebo, if required) supplies for the trial; again the clinician is in a better position to handle this aspect because the company people would rather oblige him than a non-practicing pharmacologist. The company would require a copy of the protocol, and definitely, a trial which can help its drug expand its market-share is more likely to get some support.

When the protocol is finalized after a large number of meetings with the clinician (and your other team members) and while negotiations with the company are going on, it is a good idea to send the protocol for ethics committee approval. If you are planning to conduct a trial with an old drug but for a new indication, you must get the approval from the Drug Controller General of India (DCGI) as well.

Once this system gets incorporated in the day-to-day working (it may take 1-2 years), things start to happen and very soon you will find another student saying, 'Sir, I have an idea ...." and the whole process is repeated. Rarely, we (consultants) may have an idea, which is then pursued further!

Designs of Clinical Trials

Contrary to the company-initiated trials, while planning our own trials we have to think about the study design. The most commonly employed designs are: Parallel and Cross-over. Which design to chose depends on the disease under study, the drugs, their dosages, the follow-up required, and so on. Most trials would require a parallel design except for pharmacokinetic studies and a few clinical trials.

An add-on design refers to the situation where a new drug is given along with the already existing drugs (like beta-blockers in heart failure) and compared with placebo (plus conventional treatment). A factorial design helps to study the influence of several characteristics in one trial. In a sequential design, the allocation of a subsequent patient is based on the results of the previous patient.

An n-of-one design is the one in which sample size is one patient only. It is rarely used.

Sometimes an interim analysis is planned which allows investigators to stop a trial mid-way if results are too favorable or too damaging with the new drug. Whatever you do, it must be planned and documented in the protocol.

Statistical Issues

Although very important, we will not go into details as it is an altogether different topic. Briefly, statistics provides us with a tool for analyzing the data we have obtained and coming to a meaningful conclusion. The principles of statistics are used right from sample size assessment (please do this calculation before starting the trial), to interim analysis, to final evaluation.

There are no doubt highly qualified, capable and knowledgeable statisticians around, but we think it very useful if the investigators themselves get used to statistical methods. We try to do all our statistical planning and analyses ourselves and in the process have learnt quite a lot of statistics.

GCP (Good Clinical Practice)

No discussion on clinical research can be considered complete nowadays without mentioning the magical word GCP or GCRP (Good Clinical Research Practice). GCP guidelines have been issued by several agencies, for example ICH (International Conference on Harmonization), the WHO and others. All current and potential investigators should go through them and try to follow them. They are freely available on the net and in many texts on clinical research.

GCP is a set of guidelines for biomedical studies which encompasses the design, conduct, termination, audit, analysis, reporting and documentation of the studies involving human subjects. The major stress is on documentation and that is why they GCP is commonly and appropriately summarized: "Do everything that is documented (in the protocol) and document everything you do".

While the financial back-up in industry sponsored trials makes it possible to adhere to GCP (and should be strictly enforced), this may be difficult in case of investigator-initiated trials with limited resources and personnel. Despite that, one should try to conduct the trial according to these principles. The validity and worldwide acceptance of a trial are highly enhanced by following these principles, not to speak of personal contentment.

To conclude, through GCP we try to ensure verity of data (the science of clinical research of which we have already covered some aspects) and protection of the rights of participants (the philosophy), which brings us to the ethical issues.

Ethics of Clinical Trials

The principles laid in the Declaration of Helsinki are followed. The well-being of participants takes precedence over everything else. The four principles of autonomy, non-maleficence, beneficence and justice are the cornerstones of any ethically conducted study. There is a tendency to separate ethics from science of research, which is not a right thing to do. An unethical study can not be scientifically proper and a scientifically improper study can not be ethical. A detailed discussion on ethical issues is beyond the scope of this review although a few aspects are dealt with below.

The Informed Consent

The requirement of informed consent is of paramount importance. Written informed consent is the gold standard of obtaining permission from a person to participate in the trial. Ideally a written informed consent is a sufficiently exhaustive document which not only informs the participant about the trial, but also makes him aware of his rights to be compensated (in case of trial-related injury), to receive additional treatment, if required, to withdraw at any time from the study and to be informed about the results of the trial.

The entire process of informed consent acquires a different meaning in our settings. Patients still have a lot of faith in their treating physicians, which is generally instrumental in patients readily signing the informed consent form (despite it being in English which few of them can read; it is recommended to have the consent form in local language). Here comes the responsibility of the investigator to make sure that the information provided in the informed consent form actually reaches the trial patient.

The informed consent form should be accompanied with a patient information leaflet which explains in lay terms to the patient about the disease, the study, and the alternatives available so that all the pertinent queries could be taken care of at the time of the signing itself.

The demarcation between a clinical research and actual clinical practice is not clear to many physicians, leave alone patients. Patients often have the apprehension that they are being treated as guinea pigs by mere mention of the word research. While such anxieties should be allayed if possible, a patient's right to make a choice of not participating in the trial must be respected.

Study Termination

Another ethical problem that you will commonly face when the patient completes the trial (especially if a trial medication has shown good efficacy) is that of telling him that we can not provide the medication henceforth, though we will be following him up for some more time. It is a good idea to tell the patient in advance about this aspect.

POINTS NOT COVERED

We have not discussed the several aspects like clinical trials in pediatrics, geriatrics, pregnancy, patient-compliance issues, gene-therapy trials, legal issues, publication matters (the best thing is to be clear about the sensitive subject of authorship, it should be based only on the extent of contribution, I recommend that the person who gave the idea and actually conducted the trial gets to be the first author; at last something to cheer for the poor resident), and so many others.

CONCLUSION

In the past, Indian companies could just make copies of the existing brands by changing the process of manufacturing as India followed the "process patent" regime. While this ensured availability of drugs at the prices that are among the lowest in the world, this also meant that new drug development in India remained basically non-existent. With India becoming a signatory to GATT-TRIPS, our companies can no longer use "process patent" and will have to follow the "product patent" regime. Therefore, they will need to spend on R & D in the field of new drug development. The Indian companies will then approach us for conducting clinical research and it is our duty to provide them with high quality of service (GCP-compliance, for example) so that they do not start outsourcing research out of India (this process is already going on).

The ultimate goal of 'good-will towards humans' should, in essence, be the final guiding principle.

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"POSSUM"
A Good Indicator of Morbidity and Mortality in Calcular Disease of Biliary Tract

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ABSTRACT

A Prospective study on 500 patients, admitted for calcular disease of biliary tract, was undertaken at Sher-i-Kashmir Institute of Medical Sciences, Soura Jammu & Kashmir India for assessing the validity of " POSSUM SCORING SYSTEM" along-with many other pre-operative and operative risk factors.

All patients were diagnosed cases of benign biliary calcular disease. The patients were subjected to appropriately indicated surgical procedures, observed and followed up post operatively and co-related with 30 days morbidity and mortality rates.

Post-operative morbidity was 4% and mortality was less than 1% Local wound infection, post-operative pyrexia and local pain were the commonest complications observed.

"POSSUM SCORING SYSTEM" was found to have a good predictive value in predicting the post-operative morbidity and mortality with sensitivity of 60% and specificity of 99% with positive predictive value of 100%.

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INTRODUCTION

Conventional Cholecystectomy still continues to be the commonest modality of treatment for benign biliary tract disease [1]. Recenly a number of minimally invasive surgical and non-surgical alternatives have been introduced, still an appreciable number of patients have to bear the brunt of post-operative morbidity and mortality. Detailed pre-operative evaluation, safe anesthesia, improved surgical techniques and an intensive post-operative monitoring have all contributed for decreasing the morbidity and mortality associated with these procedures.[2] However despite advances in the supportive care, a spectrum of various risk factors may increase the morbidity and mortality following surgery on the biliary tract.

A number of studies have been conducted to identify various clinical, biochemical and operative parameters responsible for increasing the morbidity and mortality in post-operative patients of benign biliary calcular disease. Hence, many scoring systems were devised to predict the risk of mortality with varying degrees of accuracy, ignoring morbidity universally.[3-6]

The ideal scoring system for surgical audit purpose should assess mortality and morbidity and should allow audit retrieval of the surgical success. It should be quick and easy to use and should be applicable to all general surgical procedures in both the emergency and elective setting. It should be of use in all types of hospitals and should provide educational information. Finally it should be possible to integrate the scoring system into pre-existing audit programmes with minimum of disruption.[3]

Copland, Jones and Walters devised a dual scoring system 'POSSUM" (Physiological and Operative Severity Score for the enumeration of Mortality and morbidity). This is a 12-tactor, four grade physiological score. While this pre-operative physiological score yields a statistically predictive risk of morbidity and mortality for the patients overall, with inter-group differences depending on the nature of surgical procedure. Logistic regression analysis of all data enabled a six factor, surgical operative score to be evolved which compensated for the type of surgical procedure.[3]

MATERIALAND METHODS:

This prospective study was conducted in the department of General Surgery at Sher-i-Kashmir Institute of Medical Sciences, Soura India on 500 patients of diagnosed calcular disease of biliary tract over a period of 18 months
(August 1992 to January 1994).

Key Words: *Biliary, Possum, Morbidity, Mortality*

Table -1

Complications (n=21)

S. No.	Post-operative Complications	No. of cases
1.	Wound infection	18
2.	Pyrexia of unknown origin	12
3.	Chest Infection	06
4.	Septicemia	03
5.	Bile leak	03
6.	Wound disruption	02
7.	Retention of Urine	01
8.	Urinary tract infection	01
9.	Thrombophlebitis	01
10.	Incisional Hernia	01
11.	Cardiac arrhythmias	01
12.	Anastamotic leak and Intra-	01
	abdominal collection.	01
13.	Upper GI Bleed	01
14.	Hemobilia	01
15.	DIC	01

Each patients full record relevant history, examination, investigations, operative procedures and post-operative complication were maintained and analyzed.

The types of surgeries performed were categorized into three groups :

TYPE-I: Cholecystectomy/ Cholecystostomy only.
TYPE.II: Cholecystectomy with CBD exploration with T tube drainage,
TYPE-III: Cholecystectomy with papillotomy/ sphincteropeasty/choledochoduodenostomy or choledocho -jujenostomy.

All the operations performed were open procedures and no laparoscopic operation is included.

Complications were assessed by clinical observations, relevant bacteriological and radiological tests; carried out only when indicated.

THE STATISTICAL ANALYSES USED WERE:

1. Multiple logistic regressions to test the relationship of pre-operative factors with post-operative morbidity and mortality.
2. Chi-square tests to analyze the relationship of postoperative mortality, complications and the relationship of preoperative factors and the postoperative complications.
3. Fisher's exact test where numbers were small.

All the patients of study group were scored according to "POSSUM SCORING SYSTEM" preoperatively with physiological parameters at discharge using the operative severity score. Using the outcome as a dichotomous dependent variable, we derived multiple logistic regression equations for both morbidity and mortality. Significance was assessed using model x2. Differences between observed and assessed outcomes were assessed using chi-square tests.

Overall we studied the effect of "35" potential risk factors in our study group of 500 patients to know about the predictive value of POSSUM SCORING SYSTEM in predicting the post-operative morbidity and mortality in benign biliary tract disease.

RESULTS

Out of 500 patients of our study group, 108 were maees and 392 females male to female ratio 1:4. Benign biliary tract disease comprised 20% of the total "General Surgical Admission". Post operative morbidity was 4% while the post operative mortality was 1%. Local wound infection and post operative pyrexia were the commonest complications observed. *(See Table I)*

Out of 35 patients risk factors considered in our study we found 16 factors
showed significant association with morbidity. These factors were: _

1. Age >50yrs.
2. Pulse rate >100 (H/o fever, chills and cholangitis)
3. WBC count >11000/cumm3
4. Blood urea >4mg. %
5. Na <120 mg/dl
6. Potassium <3mg /dl
7. Operations of major severity Type iii > Type II > Type II I' Multiple procedures or H/O previous surgery on biliary tract.
9. Positive h/o Jaundice.
10. H/O associated medical illness especially diabetes.
11. Prothrombin Index < 80%
12. Sr. Creatinine >1 .2mg %
13. Sr. Alkaline phosphatase >100 iu/l
14. Sr. bilirubin >2mg%.
15. Positive blood culture.
16. Operating time > 1 and half-hour.

There were 5 deaths; four were due to a cause directly related to the disease or complications which included D.I.C in one patient, and septicemia in three patients while one death was related to myocardial infarction. (Also see table II & II)

We also found that the number of risk factors present in the preoperative period have a direct bearing on operative morbidity and mortality (table IV). Our study based on 50%-predicted risk revealed that the indicator fielded a sensitivity of 62% and a specificity of 94% fir the prediction of morbidity in the postoperative period.

While evaluating the patient preoperatively, presence of risk factors 1-5 or more in that order multiplies the risk involved with the surgical outcome. Patient with five or more than 5 risk factors being at highest risk of getting post-operative complications.

Scoring system was also in a position to predicted the possibility of complication to the tone of 62% and on the contrary, it was helpful in predicting 94% cases with no complication. Hence, we found the system favourable to a noticeable extent in predicating morbidity and mortality.

DISCUSSION

Now-a-days, the management modalities of most of the diseases are changing for better all over the world. The slogan of quality care and cure is seeing its dawn because of better understanding of disease pathogenesis, better investigative support, better spectrum of drugs, better diagnostic and technical equipments and above all, self-critical appraisal or audit by using various scoring systems' In surgery the audit has increased in importance over the past few years, both as an educational process and as a means of assessing the quality of surgical care.

Scoring would seem to be the best method available for assessing the risk of mortality and morbidity, but most of the scoring systems could not match our expectations as being readily applicable to the audit. In order to minimize the risk

TABLE-II (PHYSIOLOGICAL SCORE)

MORBIDITY

No	Clinical Parameters	Total No. of Cases	Cases with Post-operative Complications	X^2	P	Remarks
1.	Age in years					
	<50	402	08	24.86	<.001	H.S
	>50	98	13			
2.	Cardiac Signs or Chest Radiograph					
	Yes	11	01	0.603	>.50	N.S.
	No	489	20			
3.	Respiratory Disease					
	Yes	23	20	0.01	>.50	N.S.
	No.	477	01			
4.	Systolic B.P					
	110-130	490	20	0.003	>.50	N.S.
	131-170	10	1			
	<171	Nill				
5.	Pulse-rate	N.S.				
	<100/mt	437	03	103.64	<.001	H.S.
	>100/mt	61	18			
6.	Glasgow coma Scale-15	500	21	0.01	>.05	N.S.
7.	Hemoglobin values					
	>10g%	406	17	0.0003	>.05	N.S.
	<10g%	94	04			
8.	WBC Count					
	<6000	339	04	30.87	<0.001	H.S
	=11000	106	08			
	>11000	55		09		
9.	Urea					
	>40mg%	23	06	23.16	<.001	H.S
	<40mg%	477	15			
10.	Sodium					
	>140mg%	477	15	23.16	<.001	H.S
	<120mg%	23	06			
11.	Potassium					
	<3mg	18	65	25.62	<.001	H.S
	>3mg	482	16			
12.	ECG					
	Normal	495	9	0.01	>0.50	N.S
	Atrial fibrillation (rate60-90)	2	1			
	>5 ectopics/min	3	1			

Table : Showing statistical co-relation of various operative parameters with mobidity.

Note: N.S: Not Significant, H.S: Highly Significant,<:Less than, >:More than

of inappropriate score usage, we utilized the "Scoring System" devised by copelend, Jones and Walters[1] i.e., "POSSUM SCORRING".

Our prospective study showed female preponderance of 4:1as observed by others [4-7]. Also, the morbidity and mortality was quite low and favourably comparable with national and international figures [6,8,9]. All the sixteen identified potential risk factors were found to have an independent significance in predicting morbidity, which is in accordance with international literature [5,6,10-11] The process of "POSSUM Scoring" when applied during the present study based on 50% predicted risk revealed that the indicator yielded a sensitivity of 62% and a specificity of 94% for the prediction of morbidity in the post-operative period.

Also it was quite evident that scoring system has been in a position to predict the possibility of complication to the tune of 62% and on the contrary, it was helpful in predicting 94% cases with no complication. Moreover, based on 50% predicted risk of death and the final outcome, the sensitivity was 60% and specificity being 99% Hence, we found the system favourable to a noticeable extent like other studies in predicting morbidity and mortality [1,12]. Also the co-relation between the predicted and observed rates for morbidity and mortality was statistically significant (P<0.050) as observed by coplend and others [13,14,15]. (Table V)

In recent surgical review article on the subject of risk scoring in surgical patients, it was concluded that" the POSSUM SCORE is the most appropriate of the currently available score of general surgical practice "in the estimation of risk of dying.[16] When used for complex surgeries like liver transplantation, it could predict in part the adverse outcome of surgery by several pre-operative and intra operative factors.17 POSSUM has also been evaluated extensively in both general and specialist surgery while there are problems with both data collection and analysis, but when used correctly POSSUM can usefully compare outcome between surgeons and hospitals. In specialist surgery, however, individual regression equations may be needed for each index procedure'[18] The study used to assess the predictive value of the said scoring system for morbidity and mortality in laparoscopic chotecystectomy in patients above 80 years was found to be small single centered retroscopective study along with lack of clibration in the said surgery.[19]

Although POSSUM may not be able to replace highly specific scoring systems for individual disease states or the intensive care patient, it does appear to provide an efficient indicator of the risk of morbidity and mortality in the patients of benign billiary tract disease. Thus, we conclude that 'POSSUM Scoring System" is accurate and useful for surgical audit in-patients of benign biliary tract disease, however, we reaffirm that it should be used as an adjunct to surgical audit.

We also recommend that the value of POSSUM Scoring in identifying high risk patients undergoing surgery for

TABLE-III (PHYSIOLOGICAL SCORE)

S.No	Clinical Parameters	Total No. of Cases 500	Cases with Post-operative Complications	X	P	MORBIDITY
						Remarks
1.	Operative sverity Type I Type II Type III	401 78 21	05 12 04	44.44	<.001	H.S
2.	Blod loss <100ml >100ml	486 14	20 01	0.01	>.50	N.S
3.	Peritoneal soiling None Minore Local pus Free bowel contents	479 21	13 6 2	0.01	>.50	N.S
4.	Malignancy None	500	21	0.0	>.50	N.S
5.	Multiple procedures 1 2 >2	477 23	15 06	23.16	<.001	N.S
6.	Mode of Surgery Elective Emergency	482 18	16	25.62 05	<.001	H.S

Note:. N.S: Not Significant, H.S: Highly Significant, <:Less than,>:More than

Table:. Showing statistical co-relation of various operative parameters with morbility.

TABLE-IV

Relationship of risk factors with morbidity in benign biliary tract surgery

No. of Risk Factors	Total Cases No. (%)	Cases with Complication No. (%)	Odds Ratio
Nil	110 (22.00)	01 (.91)	1.00
01	118 (24)	02 (2)	1.86
02	101 (20)	02 (2)	2.20
03	68 (14)	03 (4)	5.03
04	60 (12)	05 (8)	9.91
05 or more	43 (9)	08 (19)	24.91

While evaluating the patient preoperatively, presence of risk factors 1-5 or more in that order multiplies the risk involved with the surgical outcome. Patient with five or more than 5 risk factors being at highest risk of getting post-operative complications.

TABLE-V

Preedicated rate Vs. observed rates for morbidity and mortality

Predicated rate		Observed rate (%)	
		Mortality	Morbidity
80		96	99
70		84	87
60		72	74
50		60	62
40		48	50
30		36	37
20		24	25
10		12	12

Remarks: Correlation between predicted and observed rates is significant)P<.05) benign biliary tract disease needs to be evaluated and compared in further studies.

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Original Article

Mini-Appendectomy (An Experience of 100 Cases)

Sanjay Kumar Shasin, Satyendra Dhar

ABSTRACT

Acute appendicitis is one of the most common surgical emergencies requiring immediate surgical intervention for total cure as well as to avoid complications. Appendectomy is practiced worldwide as emergency as well as elective procedure. We, in our series performed appendectomy in emergency successfully in 100 cases, 45 males and 55 females in the age group of 11-63 years with the help of a small transverse incision 2.5 to 3 cm long in the right lower abdomen starting just on the lateral border of rectus muscle and extended laterally in the line of Mc Burney's point. The only muscle in the operation field was rectus that was retracted medially. No other muscle was cut/splitted. The time taken to complete the operation was 17.4 minutes (13 to 45 mt), post-operative analgesics used were 2.13 dose per patient (2-5doses), post-operative hospital stay of 2.3 days (2-7 days). There was no mortality and negligible morbidity in the form of wound infection (n=04), anterior abdominal wall haematoma (n=04), subcutaneous emphysema (01). Better cosmesis and almost invisible scar is the hallmark of small incision appendectomy that is what we have observed in the study. Time to return to work (RTW) was 8.2 days (7-10 days). No complication was seen in follow up period extending from 15 days to 06 months. Success rate of small incision appendectomy was 96% with 04 cases requiring extension of incision to maximum 4 cm. We gave it the name of Mini-appendectomy.

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Introduction: Acute appendicitis is one of the most common "acute surgical abdomen" World over, requiring surgical intervention for total cure as well as to avoid complications. As the notification of the disease is not required its exact incidence is unknown. Since the days of Mc Burney who devised muscle-splitting incision for appendectomy there have been very few incisions devised like Rocky Dave's, Rutherford Morison's, Battle's incision and lately Lanz incision etc for appendectomy. (1) But after the invent of minimally invasive procedures in the field of surgery especially after the invent of Laparoscopic surgery a tidal wave have been set in with much enthusiasm among the surgical fraternity for minimally invasive surgery in order to give better comfort, better cosmesis and early recovery to the patients. Added to it is the fact that modern advertising continues to glorify the blemish free face and body, an exposed abdominal scar is viewed as most objectionable. The strong desire of patients especially females to avoid abdominal scar has encouraged many surgeons to use a variety of incisions for abdominal visceral surgery that are hidden from exposure. Surgeons have tried from time to time cosmetically better incision for appendectomy (2-5) but without following them thereafter. Our study is based on a technique wherein small incision 2.5 to 3 cm is given in right lower quadrant without cutting/splitting any muscle. We successfully performed small incision appendectomy in 96 cases (n=100) and suggest that it may be called as **Mini-appendectomy**.

Material and Methods: 100 patients, 45 males and 55 females in the age group of 11-63 years with clinical signs and symptoms of acute appendicitis were subjected to emergency appendectomy either under SA or GA from July 1999 to December 2003 with the help of 2.5 to 3 cm transverse incision in the right lower quadrant of the abdomen. Appendectomy was successfully performed in 96% (n=100) and in 4% (n=04) incision had to be extended to 4 cm maximum. Patients with perforation peritonitis, clinically appreciable appendicular lump, doubtful diagnosis and obesity were left out of the study group.

Operative Technique: Mc Burney's point and lateral boarder of the right rectus muscle was marked, incision started on the lateral border of rectus

Key Words: *Acute appendicitis, Mini-appendectomy, Rectus muscle*

muscle and extended transversally towards Mc Burney's point (2.5-3 cm). Anterior sheath cut in line of the skin incision and rectus muscle retracted with the help of long pronged Skin/Czerni's/Langenbuch's retractors. Peritoneum approached, is picked up with the haemostats and cut in the line of skin incision. Once abdominal cavity is approached retractors are removed and subsequently it requires little effort and manipulation to trace the appendix. We could not come across any abnormally placed appendix in any of our cases. Rest of the procedure of appendectomy is done as per the standard protocol. We don't close peritoneum and retracted muscle comes to its place once the anterior sheath is sutured with chromic catgut. Skin is closed either with interrupted silk or subcuticular prolene. In 04 cases in which incision was extended, rectus muscle medially and external oblique/internal oblique/transverses abdominus laterally were cut partially for the better exposure. No special retractors are required for the procedure.

Results: Mini-appendectomy was completed successfully in 96 cases with 04 cases (4%) requiring extension of the incision up to 5 cm maximum. Average operation time was 17.4 mts, analgesics used (injection diclofenac sodium in calculated doses) were 2.13 doses on average, hospital stay was 2.3 days on an average and return to routines was 8.2 days on an average. There was no mortality and negligible morbidity in the form of wound infection in 04 cases, anterior abdominal wall haematoma in 02 cases and subcutaneous emphysema in 02 cases. In 80 cases bowel sounds were heard on first post-operative day and in same number of cases flatus was passed by the patient on first day. Intravenous fluids stopped on first postoperative day in quite a good number of patients (n=80) and on second postoperative day in majority of cases (n=95). Intra operatively, in 85 cases appendix was acutely inflamed, appendicular lump was seen intra-operatively in 04 cases which probably was missed on clinical examination and in 03 case associated Meckel's diverticulam was also noticed which was dealt accordingly. In all the 03 cases incision was to be extended up to maximum up to 5 cm. In follow up period ranging from 15 days to 06 months no complication were observed and patients were quite satisfied with the overall outcome of the surgery. The results of study are detailed in Table I&II.

Table I:

Peri-operative Parameters in Mini-appendectomy.

Length of incision	**2.5 to 3 cm (2.7 cm)**
Operation time	13-45 mts (17.4 mts)
Incision extension	04 cases
Analgesics used	2-5 doses (2.13 doses)
Hospital stay	2-7 days (2.3 days)
Return to Routines	7-10 days (8.2 days)
Satisfaction with the scar	96% (n=96)
Minor Complications	8% (n=08)

Table II:

Per-operative Findings.

Operative findings	*No. of cases*
Acute inflammation/suppuration	85
Gangrene of the tip	04
Appendicular lump	04
Associated pathology	03
Normal	04

Discussion: Claudius Amyand (1736) Surgeon to the Westminster's and St. George's Hospital as well as Sergeant Surgeon to George II had the credit to incidentally do appendectomy in 11 years old boy who had a right scrotal hernia. Within the scrotum was found appendix, perforated by a pin. The appendix was ligated and all or more likely, part of it was removed, with the recovery of the patient.(6) In 1886 Fitz, Professor of pathology at Havard University; used the term "Appendicitis" and went on to stress upon "the vital importance of early recognition of perforated appendicitis".(7) Credit of first published appendectomy goes to Kronlein (1886), the patient 17 year old died 02 days after the surgery.(8)

McBurney's (1889) took the credit to pioneer early diagnosis and early operative intervention devising muscle splitting incision for appendectomy named after him.(6,8) Mc Burney's incision is more than a century old but still the most frequently used incision for appendectomy. As the civilization advanced strong desire of patients especially the female to avoid abdominal scar has encouraged many surgeons to use a variety of cosmetically better incision in visceral surgery. For appendectomy very few authors have worked on the subject that too without following their work, hence this area of one of the most common emergency visceral surgery remained without an established minimally invasive incision. Since the first published laparoscopic cholecystectomy in 1987 by Phillipe Mouret in Lyon, France.there have been a real revolution in the field of visceral surgery.(9) Kurt Semm did first laparoscopic appendectomy in 1983(10) but first published laparoscopic appendectomy was reported in 1987.(11) Unfortunately like mini incision, laparoscopic appendectomy too have failed to establish itself as surgical technique of choice for acute appendicitis, it being expensive and takes longer operating time.(12,13) Suh tried small incision 1.5 to 2.5 cm (microceliotomy) combined with laparoscopic instruments to diagnose and do subsequent appendectomy.(14) It too have failed to establish, as it losses its essence where concomitant facilities of laparoscopic instruments are not available.

Enthused by minimally invasive surgery and non-establishment of laparoscopic appendectomy we have done a clinical trial of small incision appendectomy, wherein 2.5 to 3 cm transverse incision is made in the right lower quadrant near ileocaecal region in 100 patients with success rate of 96%. In our study group, age of the patients was 11-63 years with 35 males and 40 females. The time taken to complete surgery was 17.4 mts (13-45 mt) that was much less than what is seen in conventional and laparoscopic appendectomy. There was less need for analgesics i.e. 2.13 doses per patient (2-5 doses). On average post-operative hospital stay was 2.3 days (2-7 days) and time to return to work was 8.2 days (8-12 days). There was no mortality and acceptable but negligible mortality in the form of anterior wall hematoma (n=02) and wound infection in 04 cases, subcutaneous emphysema 02 cases. The patients were quite satisfied with the outcome of surgery as well as cosmetically much better scar. In our study the incision was small and without much muscle/nerve derangements, hence we could not encounter any case of incisional hernia. This was observed in the follow up period extended from 15 days to 06 months.

Conclusion: Enthusiasm among surgical fraternity for minimally invasive surgery have almost made the aphorism **"The Bigger the Surgeon, the Bigger the incision"** lose its essence. Our experience of 100 cases of Mini-Appendectomy reveals that appendectomy done by the mentioned technique is safe, cosmetically much better without mortality and negligible morbidity. Furthermore, mini-appendectomy enables less hospital stay, less need for analgesics and early return to the routine, as small incision causes less tissue trauma and anoxia thereby, decreasing risk of pain, wound infection and incisional hernia. This ultimately decreases hospital stay as well as helps in early recovery. Patient with perforation peritonitis, appendicular lump, obesity and doubtful diagnosis are unsuitable for the procedure. It is also true that minimally invasive surgery not only improves the quality of surgical treatment but also increases the efficacy of health care investments and **Mini-appendectomy** done by mentioned technique is one of them. We believe that experience in the field of mini-appendectomy needs further evaluations with respect to its comparisons with conventional appendectomy and laproscopic appendectomy in order to establish it as a minimally invasive procedure of choice for appendectomy.

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Ocular Manifestations of leprosy – A Clinical Study

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ABSTRACT

Leprosy (Hansen's Disease; Hanseniasis) is a chronic disease caused by Mycobacterium Leprae. Today leprosy impairs the physical, social and economic well being of about 15 million people especially in the third world countries because of under developed health care provisions. There is no systemic disease which so frequently gives rise to disorders of the eye as leprosy does. Extraocular structures and anterior segment structures of the eye are generally affected by leprosy. Posterior segment structures, particularly the choroid may show some pathology, in which lesions have been identified, though rarely.

A total of 100 patients were studied for ocular involvement. Ocular lesions were found in 69 patients, more in lepromatous leprosy followed by borderline leprosy and tuberculoid leprosy. Ocular changes were common in patients with duration of leprosy for more than 15 years. Madarosis and lagophthalmos were found to be the major affections. Corneal involvement was seen in 25 patients and uveal tract involvement in 22 patients. No patient with posterior segment involvement was seen.

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MATERIALAND METHODS.

This study was conducted in the department of Ophthalmology, Govt Medical College, Srinagar. 100 diagnosed cases of leprosy were taken up for study, which comprised of those cases who attended the out patient department, referred for routine eye checkup. Each patient was subjected to detailed history taking followed by a detailed ocular and general physical examination as per a set format. Patients were clinically divided into Lepromatous, Borderline and Tuberculoid types.

Examination of adnexae and extraocular structures included the examination of face, orbits, eye-brows, eye-lids, palpebral fissure, blink reflex, extraocular movements and bell's phenomenon, lacrimal sac, evidence of dry eye if any.

Examination of the anterior segment structures was done in detail with the help of a slit-lamp. The conjuctiva, cornea, anterior chamber, iris, pupil and lens were examined for different findings. A dilated fundus examination wherever possible was done, using both a direct and indirect ophthalmoscope. Recording of visual acquity and intraocular pressure was also performed.

RESULTS.

The study of 100 patients with leprosy revealed the following results.

1. Distribution of patients according to age.

Age in years	No of patients	%age
10-20	03	03
21-40	28	28
41-60	54	54
>61	15	15

Majority of the patients belonged to the age group of 41-60 years.

2. Patients showing Ocular involvement

Total No of Patients	Patients showing Ocular Involvement	%age
100	69	69

The high incidence of ocular involvement may be because of late diagnosis and treatment.

3. Distribution of patients according to sex.

Sex	No of Patients	%age
Male	82	82
Female	18	18

4. Distribution of patients with ocular involvement according to sex.

Sex	No of Patients	%age
Male	57	82.60
Female	12	17.39

As far as sex incidence is

Key Words: *Lepromatous leprosy, Borderline leprosy, Tuberculoid leprosy,*

concerned,this study revealed a sex ratio of 5:1.The high incidence of males may probably be due to more exposure.Males usually attend the hospital for treatment more voluntarily,thus easily identified.

5. Type of Leprosy and Ocular involvement.

Type of Leprosy	No of Patients with Ocular involvement	%age
Lepromatous	52	75.36
Borderline	10	14.49
Tuberculoid	07	10.14

Among the three major types of leprosy.all were found to have ocular changes with lepromatous type being predominant.

6. Duration of leprosy.

Less than	15 years	More than	15 years
No of cases	%age	No of cases	%age
18	26.08	51	73.91

The ocular complications were found to be directly proportional to the duration of leprosy.Most of the cases with ocular lesions with more than 15 years duration were in lepromatous group since it takes longer time in lepromatous leprosy for ocular changes to manifest.

7. Ocular lesions.

a. Madarosis in various types of leprosy.

Type of Leprosy	No of cases with Madarosis	%age
Lepromatous	36	52.17
Borderline	10	14.49
Tuberculoid	04	5.79

The loss of eye-brows(superciliary madarosis) and eye lashes(madarosis) was encountered in 72.46% of patients.

b. Lid lesions

Lid abnormality	No of cases	%age
Ectropion	06	8.69
Entropion	03	4.34
Trichiasis	09	13.04

All the 6 cases of ectropion were seen in lepromatous leprosy.Among the 3 cases of entropion,2 cases were seen in lepromatous and 1 case in tuberculoid leprosy.Trichaisis was seen in 9 cases of which 7cases were of lepromatous group and 2 cases of borderline group.

c. Among the complications of lacrimal system,2 cases of chronic dacryocystitis were observed in lepromatous leprosy.It may be due to damage of the nasal cartilage,secondarily causing chronic dacryocystitis.

d. Among the conjunctival lesions,chronic conjunctivitis was seen in 11 cases.10 cases were in lepromatous group and 1 case was seen in borderline group.2 cases of pterygia observed were of borderline group.

e.Scleritis and episcleritis were observed in 8 cases,out of which 5 qases were of lepromatous type and 3 cases of borderline leprosy.

f. Sight threatening lesions.

Type of involvement	No of cases	%age
Corneal involvement	25	36.23
Uveal involvement	22	31.87
Complicated cataract	13	18.84

Among the 25 patients with corneal involvement,superficial keratitis was seen in 7 cases,corneal opacities in 5 cases,interstitial keratitis in 4 cases,adherent leucoma in 1 case,corneal ulcer 3 cases and 5 cases of pannus were seen.All the 25 cases had lepromatous form of leprosy.

Out of 22 cases of uveal involvement,20 cases had chronic iridocyclitis and 2 cases had acute iridocyclitis.Although it is mentioned that iris pearls are pathognomic of leprosy, no such case was seen in this study.

Complicated cataracts were encountered in 13 cases.12 cases were from lepromatous group and 1 case from borderline group.9 cases had bilateral cataracts while 4 cases had unilateral cataracts.

Although lagophthalmos was commonly encountered(28.98%), majority of the patients were lucky to have positive Bell's phenomenon as protective mechanism and hence the incidence of exposure keratitis was relatively low(7.24%).

Incidence of Lagophthalmos according to the type of Leprosy

Type of leprosy	No of cases	%age
Lepromatous	13	18.84
Tuberculoid	04	5.79
Borderline	03	4.34

g. Other lesions.

Iris atrophy	04 cases
Ciliary staphyloma	02 cases
Unilateral facial nerve paralysis	05 cases

Incidence of Blindness

No of blind patients	Unilateral	Bilateral	%age
28	09	19	40.57

Out of 28 cases of blindness,27 were of lepromatous leprosy and 1 case was of borderline leprosy.

Causes of Blindness.

Type of involvement	No of patients
Iridocyclits	19
Exposure keratitis	03
Corneal opacity	03
Interstitial keratitis	03

Blindness in this study was high,inspite that all the patients were receiving systemic anti-leprosy treatment.Late diagnosis of ocular changes,inadequate treatment of both ocular and systemic leprosy,patient ignorance alongwith poor socio-economic conditions,social stigma and lack of regular supervision may be the contributing factors.

DISCUSSION.

Eyes are commonly involved in leprosy,the mechanism being infiltration of the tissues and damage to the nerves.The involvement varies from 40-80%,as quoted in various studies.The present study showed an incidence of 69% similar to other studies.(Table 1.)

The ocular involvement was found to be higher in lepromatous leprosy(75.36%), followed by borderline (14.49%) and tuberculoid leprosy (10.14%) in our study.Ocular complications appear to be more common among lepromatous patients than tuberculoid as anterior segment of the eye provides a favourable environment for the M.Leprae which are more numerous in the lepromatous patients.The incidence of various eye lesions reported by different studies is shown in table 2 and table 3.

Our study observed madarosis as the commonest finding (72.46%). The other common eye affections included lagophthalmos (28.98%), ectropion (8.60%), scleritis and episcleritis (11.59%),corneal involvement (36.23%), uveal involvement (31.88%), complicated cataract (18.84%), which are in accordance with other studies.

In the present study, cases of blindness were much higher (40.57%) than reported by Hornblass[9] (1974) 08%, Sheild[10](1974) 33%, Malla et al [4](1981) 28%, Courtright[5](1984) 29.50%, HerKsin Tsai[15] (1985) 31%. This could be because of longer duration of illness and delay in treatment in our patients.

The ocular involvement in leprosy is directly related to the duration of the disease.[18] In our study the mean duration of illness was 15 years.Those patients with longer duration of illness (>15 years), (73.91%) had more severe involvement, multiple lesions and more mutilations.

As reported in different studies, the anti-leprosy treatment does not prevent or retard the development of ocular lesions. However early treatment may arrest the posterior segment changes.[19] In the present study, most of the patients were on anti-leprosy treatment and we observed that inspite of all patients undergoing sulfone mono or multidrug therapy, incidence of blindness was high.It may be due to

Table 1.

Study	Ticho&I.Ben.Sira (1970)	Dutta 1972)	Dehelfs[3] (1981)	Malla et al[4] (1981)	Courtright et al[5] (1984)	Present Study
Ocular Involvement	63%	80%	52%	74%	40%	69%

Table 2. Eye Lesions(%)

Study	Madarosis	Lagophthaimos	Ectropion	Scleritis& Episcleritis	Uveal Involvement	Cataract
1. Allen[6] (1966)	—	—	—	—	17	22
2. Emru[7] (1970)	—	—	—	—	28	—
3. Weerekon[8](1972)	60	27	—	—	—	—
4. Hornblasss[9](1973)	—	—	—	—	16	08
5. Sheilds[10](1974)	59	29	13	—	—	27
6. Das[11] (1980)	—	—	—	03	—	—
7. Lamba[12] (!983)	70	13	05	—	14	—
8. Courtright[5](1984)	—	15	—	—	—	05
9. Rawal[13] (1984)	—	8.1	—	14	—	30
10. Spaide[14] (1985)	58	—	3.60	—	13	1.80
11. HerKsin[15](1985)	—	—	—	07	—	—
12. Present Study	72.46	28.98	8.60	11.59	31.87	18.84

Table 3. Corneal Lesions (%)

Incidence of various corneal lesions in various studies.

Study	Superficial puntate keratitis	Interstitial keratitis	Corneal opacities	Pannus	Corneal anaesthesia	Corneal ulcer
1. Allen[6](1960)	19	—	06	05	36	—
2. Emiru7(1970)	12	—	—	05	—	—
3. Hornblass9(1973)	26	10	50	02	—	—
4. Dehelfs3(1981)	20	01	—	—	14	—
5. Murat16(1981)	11.60	—	—	—	—	—
6. Lamba12(1983)	02	—	—	02	23	—
7. Courtright5(1984)	—	—	—	11	23	—
8. Spaide14(1985)	27	—	18	05	—	—
9. HerKsin15(1985)	—	—	—	—	24	—
10. Alka Gupta17(1990)	24	07	10	08	63	02
11.Present Study	10.14	5.79	7.24	7.24	17.39	4.34

delay in diagnosis, as patients attend the eye clinic at late stage of ocular involvement.[20]

Although prompt institution of treatment and availability of newer and better antileprosy drugs has markedly improved the outcome of those affected, the process of ocular involvement continues notwithstanding regular medical treatment.[21]

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Vaginal Delivery After Previous Two Cesarean Sections

Tanuja Amin, Shahida Mir, Masooma, Shafika

ABSTRACT

Fifty patients withPrevious two cesarean sections, done for non-recurrent causes underwent a trial of labour. Thirty-six (72%) patients delivered vaginally and thirteen (26%) had third cesarean section after failed trial of labour. One (2%) patient had rupture uterus after trial of labour and underwent cesarean hysterectomy. There was no maternal or foetal death. Our study supports the concept that vaginal birth after previous two cesarean sections is safe if high standards of obstetric care are meticulously observed and patients are properly selected for trial.

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INTRODUCTION

In the era of modern obstetrics cesarean section rates have been steadily increasing, more so over the last two decades. The rate of cesarean delivery in the United States has quintupled from 5.5% in 1970 to about 30% in 1990's, which constitutes an increase of almost 500%. It is estimated that repeat cesarean section is the main reason for these escalating figures, accounting for approximately half of the increased rate. World over, there is a tendency towards elective repeat Lower Segment Cesarean Section (LSCS) in majority of the women who have undergone previous two cesareans for one or the other indication. During the past decade, the rising cesarean section rate has become a major concern of obstetricians, health officials and consumers. Attempts have been made to limit operative births without sacrificing the accepted standards of obstetrics and prenatal care.

Considering the enormous advantages of vaginal over abdominal delivery and in absence of any obstetric or medical contraindication, patients with previous two LSCS should be given trial of Labour. Thus if the sufficient number of patients are delivered vaginally after a trial of labour, the medical risk, sociofinancial burden and overall incidence of cesarean section can be significantly reduced. The objective of this study was to determine whether trial of scar could be accomplished safely in patients with previous two cesarean sections, especially in our setup where the rush of patients is tremendous, manpower is less and monitoring gadgets are not available

MATERIAL AND METHODS

The study included 50 patients with previous two Lower Segment Cesarean Sections (LSCS) admitted in tertiary care hospital (L.D. hospital) of Govt. Medical College, Srinagar. The patients included in the study were those in whom the previous cesarean sections had been done for non-recurrent causes like acute foetal distress (AFD), antepartum haemorrhage (APH), malpresentations, impending eclampsia etc. All the patients who underwent a trial of labour, after previous two cesarean sections, were monitored meticulously for clinical symptoms and signs of scar dehiscence. In those patients where artificial cervical ripening was required it was carried out either pharmacologically with prostaglandin E_2 gel (cerviprime) –0.5 mg or mechanically with foley's cathether (balloon inflated with 30ml of normal saline) introduced into the cervical canal. Augmentation of labour was carefully done either with prostaglandin E_2 tablets (Primiprost) or with oxytocin (syntocinon).

OBSERVATIONS

The vaginal delivery rate was 72% for 50 patients with previous two cesarean sections who underwent a trial of labour. The outcome of vaginal

Key Words: *Cesarean section, Viginal birth after Cesarean Section(VBAC), Cesarean hysterectomy, Rupture uterus.*

delivery rate after previous two LSCS varied according to the indications for primary cesarean section. Vaginal delivery rate was lowest in cases where previous cesarean sections were done for failed induction (27.2%) and high for foetal distress (90.9%) malpresentations (66.6%) arrest of labour (50%) and uncertain indications (90%). Table I shows outcome of labour by various modes of induction used.vaginal delivery rate was highest (85.71%) for patients who had spontaneous onset of labour.

Table – I

Outcome of labour by various modes of induction used

Mode of Induction	No. of patients	Viginal delivery No (%)	Cesarean delivery No (%)	Rupture Uterus
Spontaneous labour	21	18(85.71%)	3(14.28%)	Nil
Prostaglandin E_2 gel (Cerviprime)	23	15(65.21%)	7(30.43%)	1(2%)
Foley's catheter	2	1(50%)	1 (50%)	Nil
Prostaglandin E_2 Tab	4	(50%)	2 (50%)	Nil
Total	**50**	**36 (72%)**	**13(26%)**	**1(2%)**

Mode of vaginal delivery varied in patients with successful VBAC. In our study of 30 vaginally delivered group, 24 patients (66.66%) had spontaneous vertex delivery while 12 (33.3%) required vacuum extraction. Post delivery exploration of uterus was done in every patient who delivered vaginally but dehiscence of scar was not observed in any case. Thirteen out of 50 patients (13%) of previous two cesarean sections undergoing trial of labour, had their labour complicated by a definite indication for repeat section. The commonest indication for repeat cesarean section was failed induction. Only one patient (2%) out of cohort of 50 had rupture uterus. In this patient cervical ripening was done with prostaglandin E_2 gel followed, after 6 hrs, by oral prostaglandin E_2 tablets. After hourly taking of eight primiprost tablets patient showed no signs of labour but developed scar tenderness. On opening the patient, it was seen that whole uterine scar had given way and additionally there was a tear on right side extending laterally upto the fundus. The baby was in the abdominal cavity but alive with placenta still inside the uterine cavity attached to the wall of uterus (Fresh rupture). Baby was resuscitated. Subtotal hysterectomy was done. There was no postoperative morbidity.

DISCUSSION

The vaginal delivery rate of 72% seen in present study is consistent with VBAC rate of 69% shown by Phelan et al [1,2]. The methods of labour induction do not substantially differ between normal and scarred uterus. The vaginal delivery rate following prostaglandin E_2 induction was 65% in our study which is slightly less than shown by Mackenzie et al [3,4] (76%) Oxytocin can be used with equal safety. In our study we used oxytocin in 20 patients for augmentation of labour, 12 (60%) delivered vaginally and 8 (40%) had to undergo repeat cesarean section. There was no uterine rupture. The finding is in agreement with Flamm et al [5,6] who showed VBAC rate of 65% with no uterine rupture. In our study, 13 (26%) patients had third cesarean section after failed trial of labour which is consistent with S. Wadhawan and J.N. Narone [7] who showed repeat cesarean section rate of 19.2% . Scar dehiscence and scar rupture is the major catastrophic complication of VBAC. In our study one (2%) patient developed rupture uterus but early detection and immediate surgery saved the baby. Subtotal hysterectomy was done and there was no postoperative morbidity.

SUMMARY AND CONCLUSION

It is evident from our results that vaginal delivery after previous two cesarean sections can be safely accomplished after proper patient selection and close monitoring. Prostaglandin and oxytocin can be safely used for induction and augmentation of labour. The women in whom previous cesarean sections had been done for failed induction have in future less chances of vaginal delivery and more chances of repeat cesarean section for same indication. Rate of scar dehiscence and rupture is very less and this catastrophic complication can be further decreased by careful selection and monitoring of patients. We conclude that a history of multiple cesarean sections need not exclude the patients from option of vaginal birth.

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JK-PRACTITIONER

Anterior Dislocation of the Radial Head with Plastic Bowing of the Ulna Introducing Modification to Bado's Classification

S. Goyal, M.Ch(orth). A. Hussain M.Ch(orth).

ABSTRACT

We are reporting an unusual Monteggia fracture dislocation, which does not confirm to Bado's' classification.

Isolated dislocation of the radial head with traumatic bowing of the ulna due to plastic deformation is an extremely rare injury. We report such a case in a three year old boy, diagnosed two weeks after injury. Containment of the radial head following open reduction was possible only after ulnar osteotomy.

We are proposing a modification to the time honoured Bado classification, applicable to paediatric age group.

A high index of suspicion in injuries around the elbow is essential to avoid late detection of this injury which is best diagnosed in the lateral view of the elbow including the whole forearm. This case also illustrates that even a short delay of a few days can make closed reduction impossible and open reduction difficult, without ulnar osteotomy.

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INTRODUCTION

Dislocations of the elbow are not so common and comprise only 6% of elbow injuries[2]. Dislocation of the radial head is even rarer and is usually associated with fracture of the proximal ulna.

Isolated dislocation of the radial head without fracture of the ulna is an extremely rare injury. Acute traumatic bowing of the forearm bones can occur, representing a plastic response to longitudinal stress[3]. Only a few cases of anterior dislocation of radial head with plastic bowing of the ulna have been reported uptil now in literature[4].

We are reporting an extremely rare case of dislocation of the radial head with bowing of the ulna. This injury was missed on initial radiographs but was subsequently diagnosed and treated surgically with good functional result.

Since this injury does not confirm to Bado's classification, our objective in presenting this rare injury is to highlight the importance of

a) modification of the existing Bado's classification to include the childhood pattern of Monteggia fracture-dislocation
b) high index of suspicion for early diagnosis and
c) importance of ulnar osteotomy.

CASE HISTORY

A three year old boy sustained injury to his left elbow following a fall. He attended the Accident and Emergency department with a painful and swollen elbow with limitation of movements but no neuro-vascular compromise. Radiographs of his elbow were regarded as normal. His arm was supported in a sling and was referred to the fracture clinic.

Four days later, he was seen in fracture clinic and was complaining of pain, swelling and restriction of movements of the elbow. He had reduced flexion, extension and supination. A minor subluxation of proximal radius was suspected to be the cause of his symptoms. He was given a clinic appointment to be reassessed in a week once the swelling had settled down.

A week later he was reviewed in clinic this time by the senior author. He still had pain in the elbow. There was tenderness over lateral aspect of the elbow. Movements of the elbow ranged from 30° – 135° of flexion with no possible rotation of the forearm.

Radiographs revealed anterior dislocation of the radial head and increased anterior bowing of the ulna (figure 1).

Under general anaesthetic, attempts at closed reduction were unsuccessful. Open reduction of the radial head, using Boyd's approach was carried out and it was noted that radial head when reduced remained

Key Words: *Radial head, Ulna, Fracture, Dislocation, Plastic bowing.*

unstable because of the anterior bowing of the ulna. Following the osteotomy of the ulna, radial head reduced spontaneously.

The radial head was held in place by passing a Kirschner wire through the capitellum and into the radial head. An above elbow plaster was applied. The plaster and Kirschner wire were removed at six weeks and active mobilisation of the elbow was gradually resumed. At 3 months, the patient was completely asymptomatic with full range of elbow movements and forearm rotation. Radiographs at this stage were very satisfactory (figure 2).

DISCUSSION

Monteggia fracture-dislocations have always been problem injuries. Giovanni Battista Monteggia[5] reported this injury in 1814. Bado[1] subsequently described 4 types of Monteggia lesions.

The most common (Type I) is a fracture of the proximal third of the ulna with anterior angulation of the fracture and anterior dislocation of the radial head. The second most common (Type II) is fracture of proximal ulna with prosterior angulation of the fracture and posterior dislocation of the radial head. Lateral angulation of the proximal ulnar fracture may result in a rare Type III with a lateral dislocation of the radial head. Type IV is a proximal both bone fracture and anterior dislocation of the radial head. Type V was added later by Dormans and Rang[7], involving intermittent and habitual dislocation of the proximal radio-ulnar and radio-capitellar joints.

In addition to these lesions 3 types of "Monteggia "equilvalent" injuries have been described. 1) Isolated radial head dislocation. 2) Fracture of proximal ulna with fracture of the radial neck. 3) Proximal third fractures of both radius and ulna with radial fracture more proximal than the ulnar fracture.

Bado's classification has been widely accepted as standard for adult lesion. It does not, however, refer to a similar lesion found in childhood.

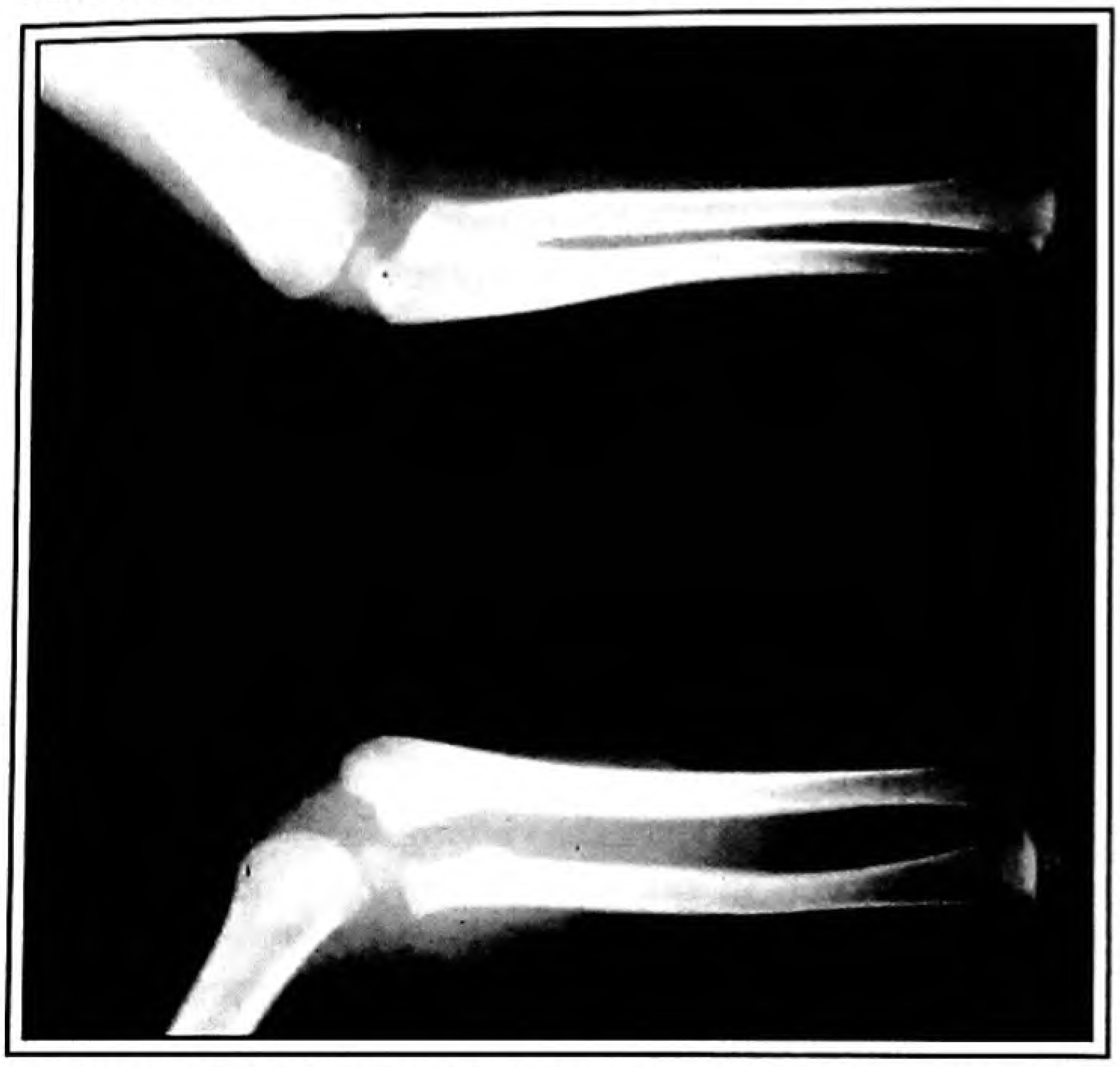

Figure 1: Radiograph of the forearm showing anterior dislocation of the radial head which is not in alignment with the capitellum. There is also anterior plastic bowing of the shaft of the ulna.

The lesion in children is believed to be different from that in adults because of higher resilience of tissues including bone[6,7]. Plastic deformation of the ulna can occur because of recoil, in association with dislocation of the radial head while in adults the same injury can produce a markedly displaced fracture of ulna.

Letts[6] devised a classification based on direction of dislocation of the radial head and type of ulnar fracture. Letts type A, is anterior bowing of the ulna due to plastic deformation with anterior dislocation of the radial head. Type B includes a greenstick fracture of the ulna with anterior dislocation of the radial head and type C is complete fracture of the ulna with anterior dislocation of the radial head, which is equivalent to Bado type I. Letts type D and type E were equivalent to Bado type II and type III. The limitation of Letts classification is that it does not identify Bado type IV as an entity and hence this is not included in their classification. Other authors[8,9,10] have considered it as a variant of Bado type I. On the other hand, Rockwood[11] emphasised the importance of Bado type IV lesion because of the importance of recognition and proper management of the radial fracture for successful treatment.

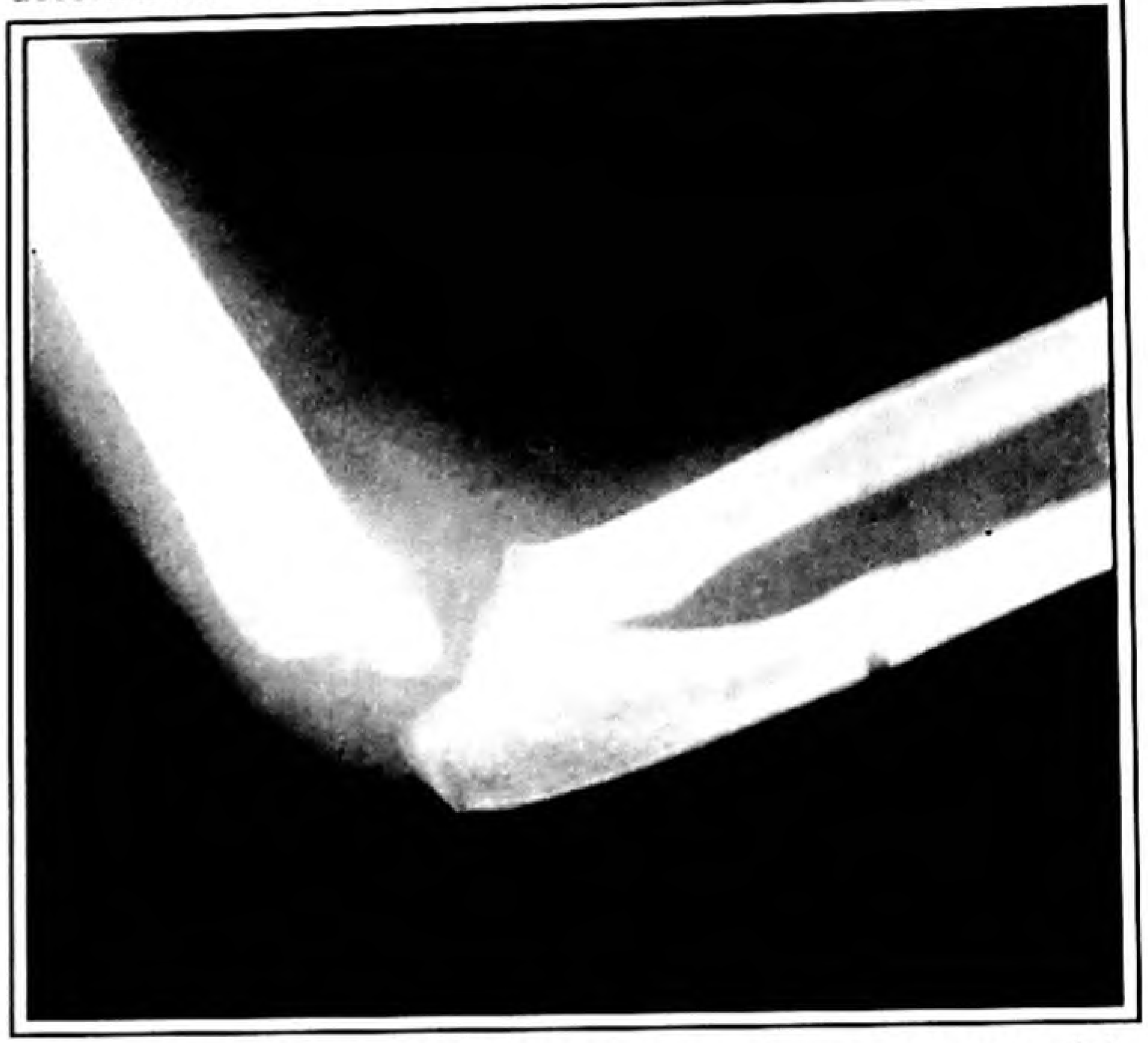

***Figure 2** : Radiograph showing corrective osteotomy of the ulna, with callus formation at the osteotomy site (3 months post-operative). Radius head is in alignment with the capitellum.*

Considering the vast spectrum of classification systems mentioned in literature, Bado classification is still the most popular. Our case (figure 1) cannot be classified as Bado type I because of plastic deformation of the ulna in association with anterior dislocation of the radial head rather than a complete fracture, though it is similar to Letts type A.

We therefore, suggest that the time honoured Bado classification, which still holds good for adult fractures, should be modified to accommodate the equivalent fracture patterns seen in childhood. This modification takes into account the severity of injury and correspondingly the nature of ulnar fracture (in association with the direction of radial

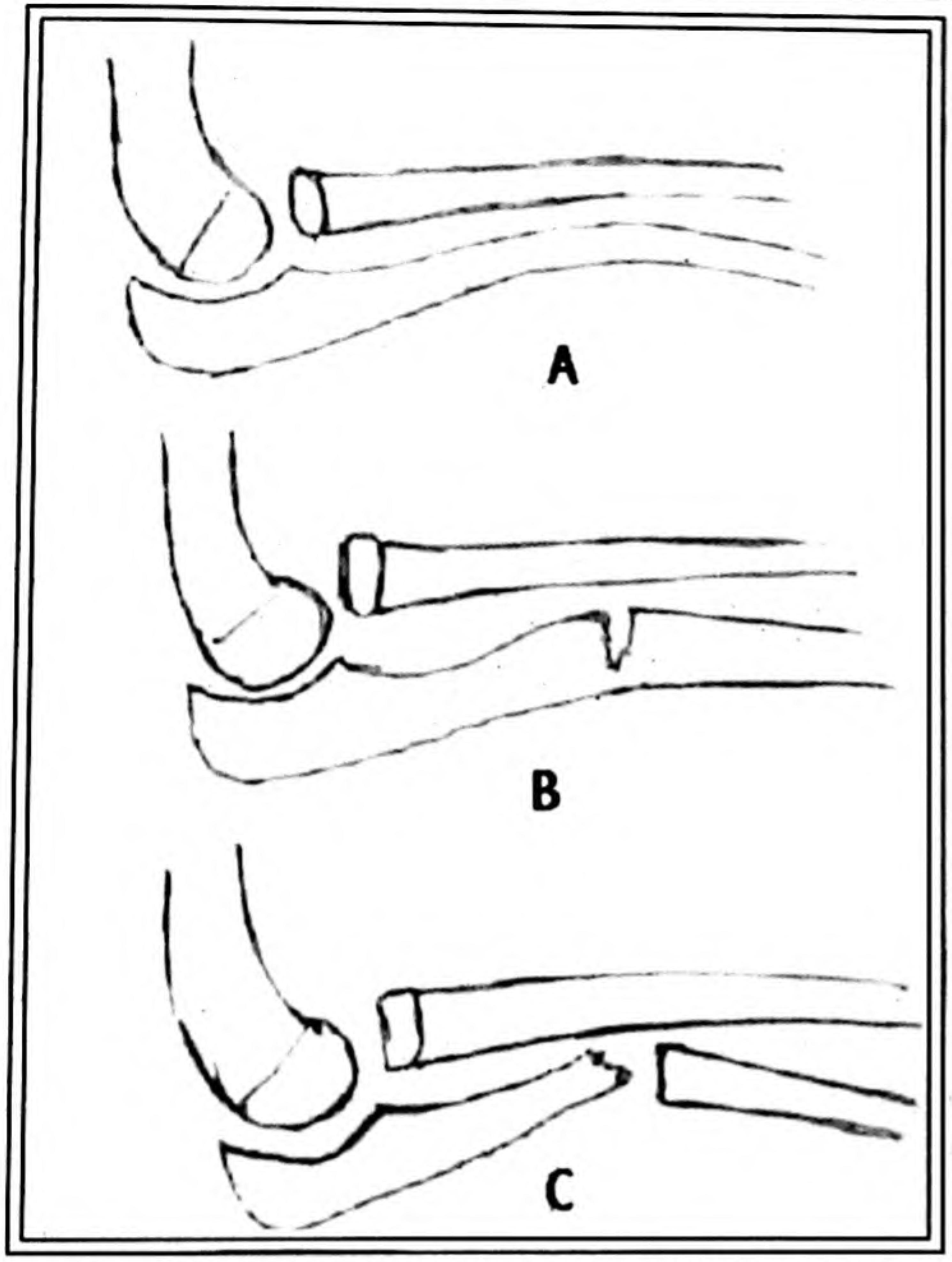

Figure 3 *: Modified Type I Bado's classification of Monteggia fracture-dislocation.*

- ***A.*** *Anterior dislocation of radial head with anterior plastic bowing of ulna.*
- ***B.*** *Anterior dislocation of radial head with of greenstick fracture of ulna.*
- ***C.*** *Anterior dislocation of radial head with complete fracture of ulna.*

head dislocation) varying from plastic bowing, greenstick fracture to complete fracture of ulna.

We have done this by sub-classifying Bado type I Monteggia fracture-dislocation into 3 further sub-types: A, B, C (Figure 3). Here subtype A is plastic deformation of the ulna, subtype B greenstick fracture of the ulna and subtype C is complete fracture of ulna. According to this modification our cases can be classified as Boyd type I-A Monteggia fracture-dislocation.

There has been mention in literature[12], though rarely, of Bado type III and type IV injuries having greenstick fracture pattern of the ulna in association with dislocation of the radial head rather than complete fracture of ulna. It is even possible that plastic bowing of the ulna may similarly be occurring in these types, though not classified or reported.

It is obvious that the greenstick fracture pattern of ulna (subtype B) is not limited to only Bado type I as described earlier but practically exists in other Bado types III and IV. With our modification these injuries can therefore precisely be classified as Bado type IIIB and Bado type IVB injuries.

Hence we suggest that subtypes A, B, C, injuries can similarly be added to Bado types II-IV, where subtype B (greenstick fracture of the ulna) and subtype C (complete fracture of the ulna), already exist in literature with the capability to classify subtype A (plastic bowing of the ulna) as in our modified Bado's classification, if reported in future.

Monteggia fracture-dislocation is an uncommon injury in children. As reported by Borden in his article[11], "Blount (personnel communication) had seen anterior dislocation of the radial head with a bowed ulna but this was not reported". Subsequently, Dormans and Rang[8] reported plastic deformation of the ulna with dislocation of the radial head in 4 patients (8%) out of a series of 50 cases of Monteggia fracture dislocations. They emphasised that the injury pattern is usually unrecognised until the entire ulna is evaluated radiographically.

A plastic curvature should be suspected in a child with clinical forearm deformity without fracture or dislocation of one bone at the wrist or elbow. It is important to obtain correct radiographs of forearm that provide anterior-posterior and lateral projections of both the wrist and elbow. Dislocation of the radial head can be judged on radiographs by a line drawn through the centre of the radial neck and head which should extend directly through the centre of capitellum[14,15].

We think that in our case the initial radiograph was of an oblique projection of the elbow rather than a true lateral. This could have been the reason that the injury was missed in the first instance only to be picked up later by the senior author. These injuries may well be misdiagnosed or confused with 'pulled-elbow' where alignment of the radial head is maintained in line with the capitellum.

Even in a normal elbow the relationship of the radial head to the capitellum can be distorted if radiographs are taken with a pronated or obliquely placed forearm[10]. A high index of suspicion and properly taken radiograph are therefore pertinent to accurate initial diagnosis.

Bowing of forearm if uncorrected, limits pronation and supination. This also resists attempts to relocate the dislocated radial head. Considerable force is required to correct the plastic deformity, the magnitude of force being equal to the force required to create it. It is likely that 100-150 percent of a child's total body weight is required to reduce these curvatures[13]. These forces are seldom attained by manipulative reduction (as in our case), but require an osteoclasis of the angulation to facilitate reduction. In our case because of the plastic deformation of the ulna we were unable to reduce the radial head. This eventually required osteotomy of the ulna and the radial head was held in the reduced position with a transcapitellar Kirschner wire. Use of transverse Kirschner wire from radius to ulna has been described[6], but we fear that it may cause radio-ulnar synostosis because of communication of haematoma.

Reconstruction of the annular ligament has been found to be necessary in late cases varying from 4 months to 3 years[16]. However, in our case following ulnar osteotomy which was done at 2 weeks, radial head was well contained and annular ligament reconstruction was not necessary.

The patient had full functional recovery at 3 months follow-up.

CONCLUSION

Anterior dislocation of the radial head with traumatic anterior plastic bowing of the ulna is an extremely rare injury. This is an injury of the childhood because of the resilient nature of the tissues seen in this age group. This injury cannot be truly classified as Bado type I.

We have proposed a modification to the existing Bado classification of Monteggia fracture-dislocation. This not only helps in better understanding of the "severity of injury", but also augers well for management. This modification can also be extended to Bado II – IV types to cover injuries of similar nature found in children.

If diagnosis is made in the early acute phase, closed reduction is usually successful, though a delay of even 13 days (as in our case) makes closed reduction next to impossible. Therefore it is important that cases seen even at this stage should be dealt with immediately.

There should be a high index of suspicion when dealing with an ulnar bowing in children and specific evaluation of elbow and wrist should be performed routinely. The deformity is best recognised with the forearm in a proper position on a true lateral radiograph which includes both wrist and elbow joints.

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Retrocaval Ureter : A Rare Entity In The Spectrum of Upper Tract Obstruction

Mufti Mahmood, Vipul Tandon, U.S. Dwivedi, P.B. Singh

ABSTRACT

We describe a case of upper tract obstruction resulting from an anomalous position of the right ureter coursing behind the inferior vena cava. Successful outcome was achieved by ureteroureterostomy.

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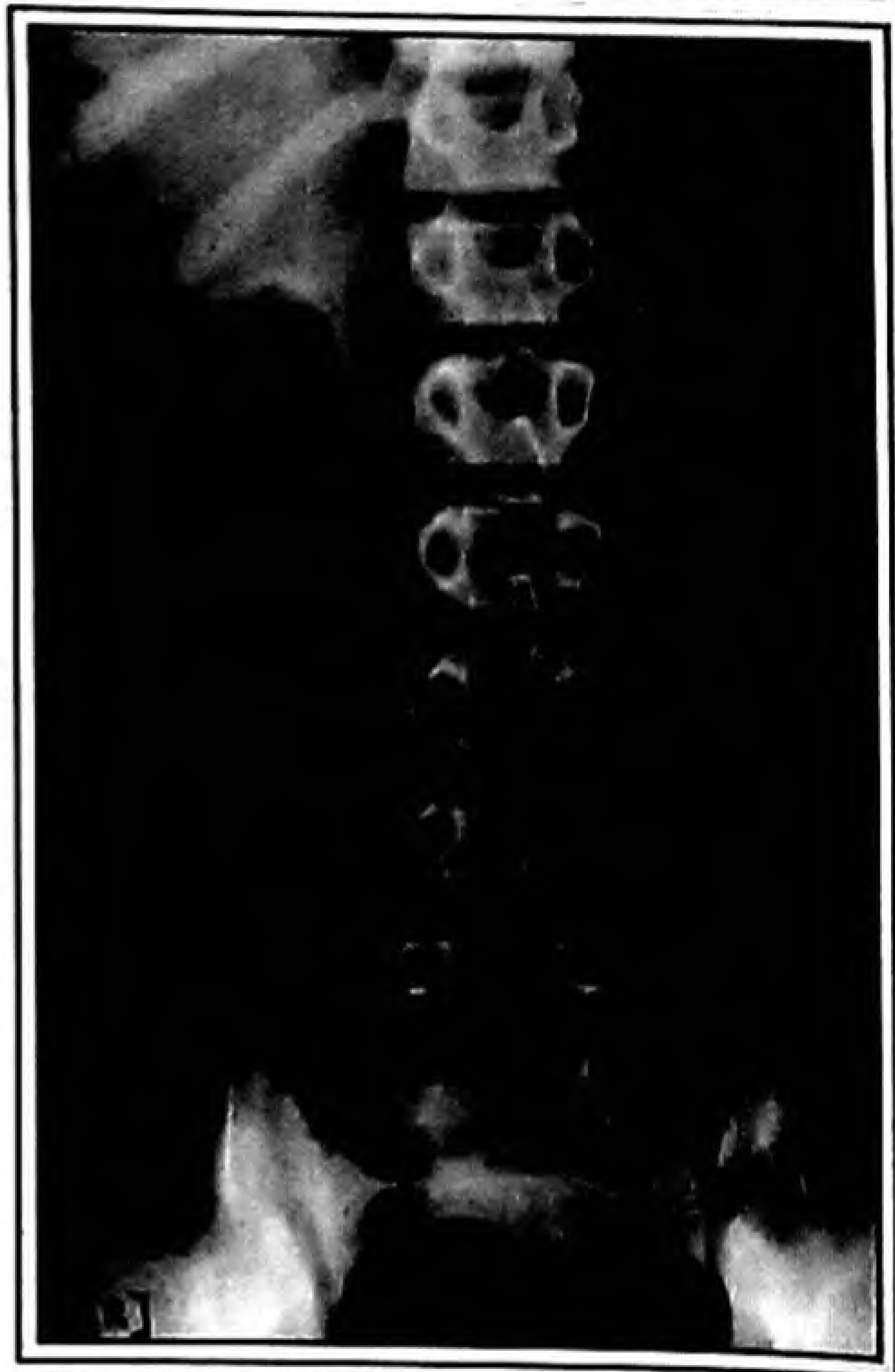

***Figure 1** : Excretory urogram showing reverse-J deformity of right proximal ureter with right hydroureteronephrosis*

INTRODUCTION

The retrocaval ureter is a rare congenital anomaly. Medlar review of literature shows only few case reports. We present such a case on account of its rarity and difficulty in diagnosis.

CASE REPORT

A 20 year old male presented with a dull ache in right loin, dysuria and turbid urine. Physical examination was normal. Urine analysis revealed 20-30 pus cells/HPF and urine culture grew E. coli. Hemogram and renal function tests were unremarkable. Ultrasonography revealed moderate right hydronephrosis with dilatation of proximal ureter. Excretory urography revealed a reverse-J deformity of right proximal ureter with right hydrouretero nephrosis (Fig. 1). Retrograde pyelography showed a S-shaped tortuous ureter at the level of L, with a provisional diagnosis of retrocaval ureter. Colour Doppler study confirmed the presence of right retrocaval ureter (Fig. 2). The patient was explored by right anterior subcostal muscle splitting incision. Operative findings (Fig. 3) revealed a dilated right upper ureter crossing behind the inferior vena cava with compression of the retrocaval portion of the ureter. The lower ureter was normal in caliber. The ureter was dissected meticulously and mobilized. The compressed and adynamic ureteral segment situated behind the inferior vena cava was excised. The ureteral continuity was restored by ureteroureterostomy after proximal and distal spatulation and JJ stenting. The incision was closed in layers after keeping a tube drain. Postoperative period was uneventful. JJ stent was removed after 4 weeks. In the follow up, the patient was asymptomatic with normal upper tracts and sterile urine.

DISCUSSION

Retrocaval ureter is a rare congenital anomaly resulting from persistence of the posterior cardinal veins during embryologic development.[1] The most common form is also referred to as circumcaval ureter, which courses from a dorsal lateral position above to a ventral medial position below around the inferior vena cava.[2]

Classically, the diagnosis has been suspected with the finding of a typical S-shaped deformity on intravenous or retrograde pyelography. A definitive diagnosis can now be made

Key Words: *Hydronephrosis, retrocaval ureter, ureteroureterostomy.*

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Dated: 24-01-2005

I am glad to know that we are shortly going to have another issue of the well-know journal in medicine namely JK-Practitioner. I have had occasions to go through some of the research papers of general interest published in this Journal and am glad to say that I have found these to be of high quality. It is also pleasing to note that several stalwarts in the field, most of whom have been alumni of our University, have been associated with this publication in one capacity or the other. That should further enhance its quality and usefulness. As a student of Social Science, however, I cannot resist the temptation to suggest that the journal must also devote space to medical ethics and humanities because the most competent doctor may not necessarily be the best doctor if not properly oriented in this field.

I wish the Journal all the best in its noble endeavour of promoting medical education.

Wahid 24/01

(Prof. Abdul Wahid)
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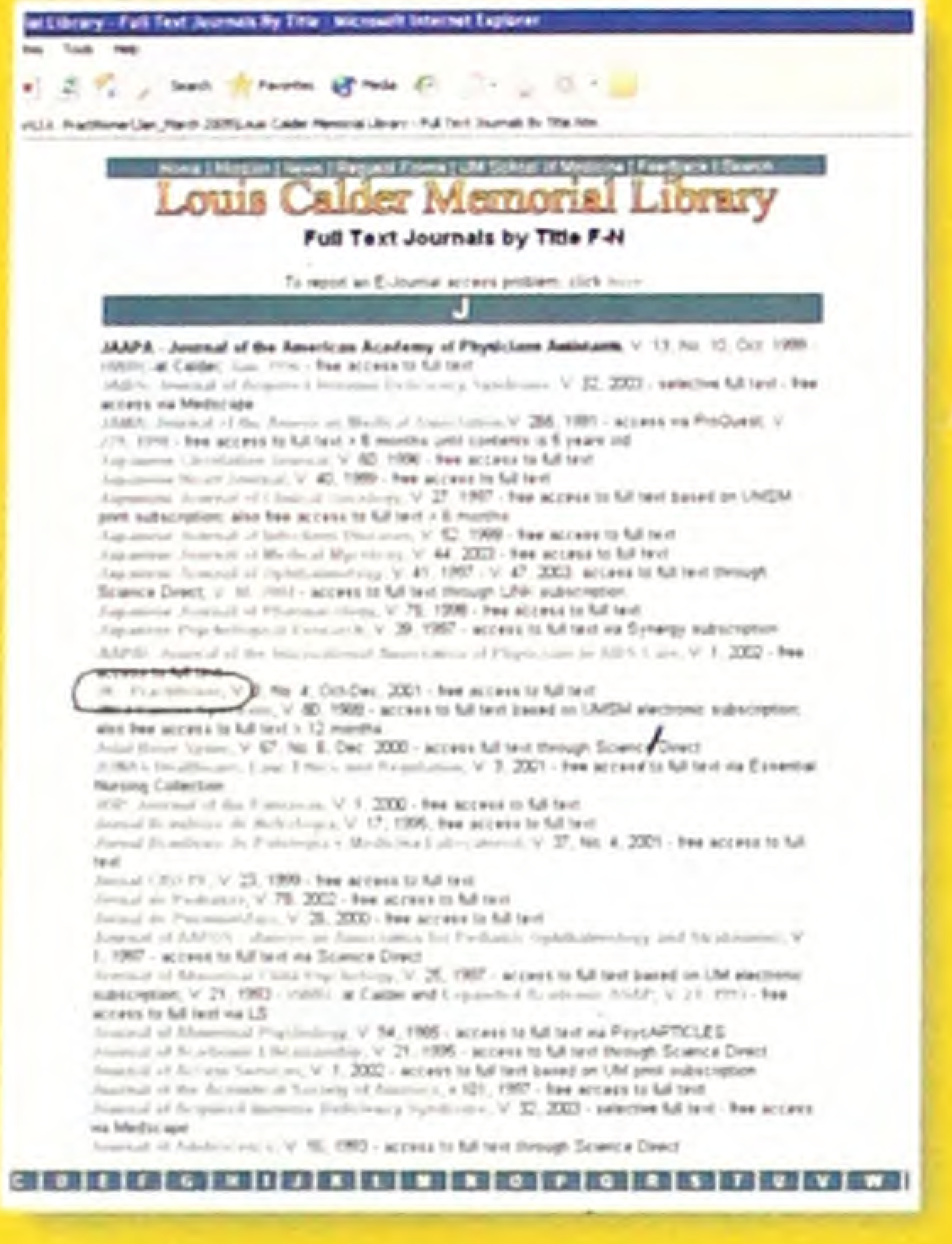

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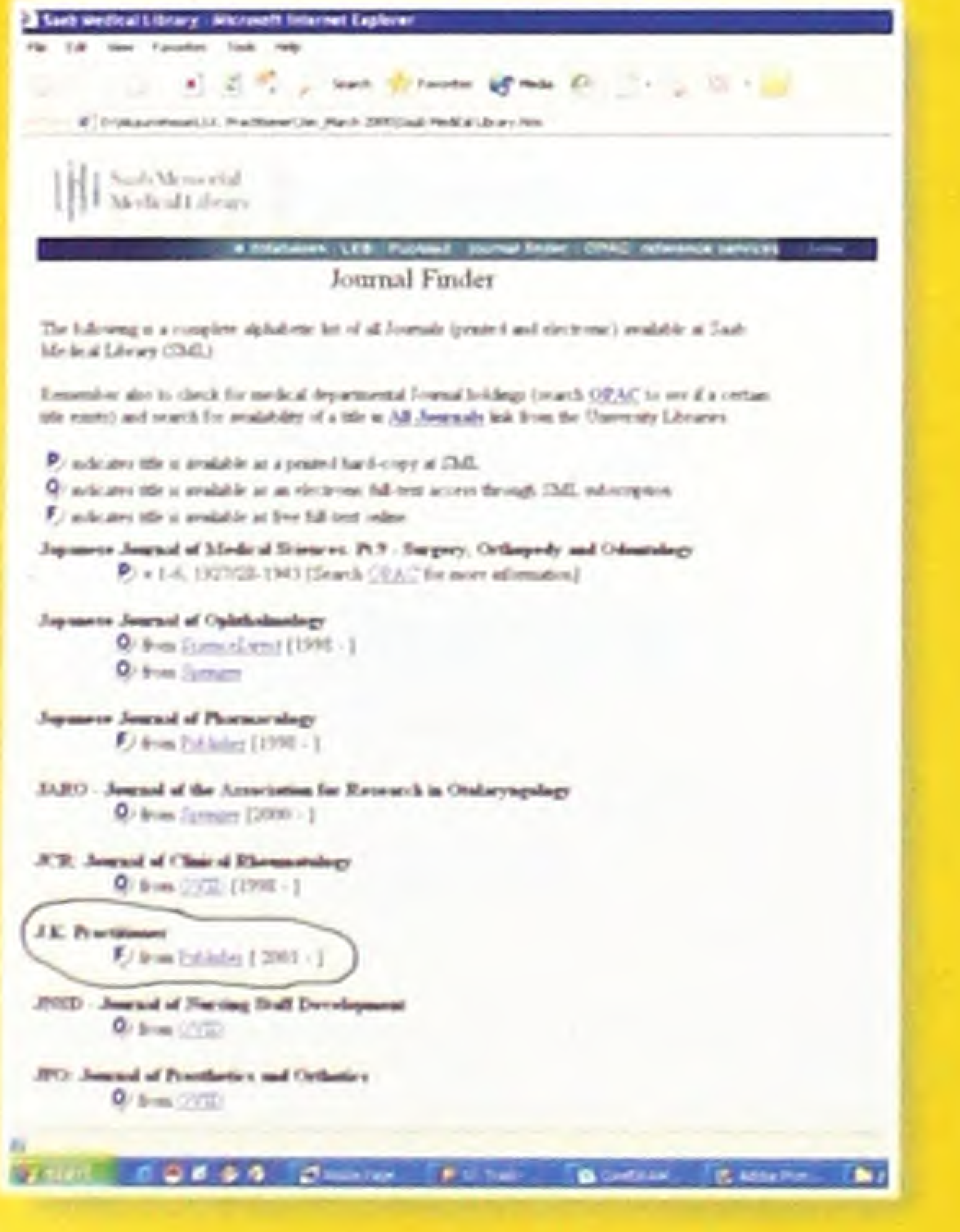

Journal Finder

Japanese Journal of Ophthalmology

Japanese Journal of Pharmacology

JARO - Journal of the Association for Research in Otolaryngology

J.K. Practitioner

JNSD - Journal of Nursing Staff Development

JPO: Journal of Prosthetics and Orthotics

With the indexing of the journal in med IND database (National Informatics Centre, Govt.of India) there is a palpable presence of JK-Practitioner on the Internet. Incidentally the Journal has received special treatment from the Database managers. Within two months of the print copy- sometimes earlier the articles are available full text on at http:/medind.nic.in. At present only 28 journals among the hundred odd have received this distinction. The medIND has been widely available on the Net. The links to some of its journals has been provided in The Directory of Open Access (http//www.doaj.org) and other institutional sites like Galter Health Science Library (http;//www.galter.northwestern.edu) under "E-Journals" and The Holland Community Hospital under "Services Link" (http://www.hoho.org/services). Besides the above "JK-Practitioner", will return links from, Entrez-Pubmed, JADE, TIE, CIRRE, DEFRA, ZDMedKoln, Genamics and Ingenta. The journal is also indexed and listed in highly respected international medical resource databases-EMBASE/Excerpta Medica and Ulrich's Periodicals Directory (USA).

There is a changed cover, as regular readers may have noted, the red is gone (not completely, though). A small change in the format of the articles and fonts has been made to present the journal as a more attractive package, in conformation with the international standards. I hope the researchers will like the changes. We are open to suggestion on any aspect of publishing.

I take this opportunity to once again thank our reviewers and the editorial board members particularly from outside India whose interest, contributions and suggestions has made JK-Practitioner, what it is today.

Wishing you a happy 2005.

GM Malik
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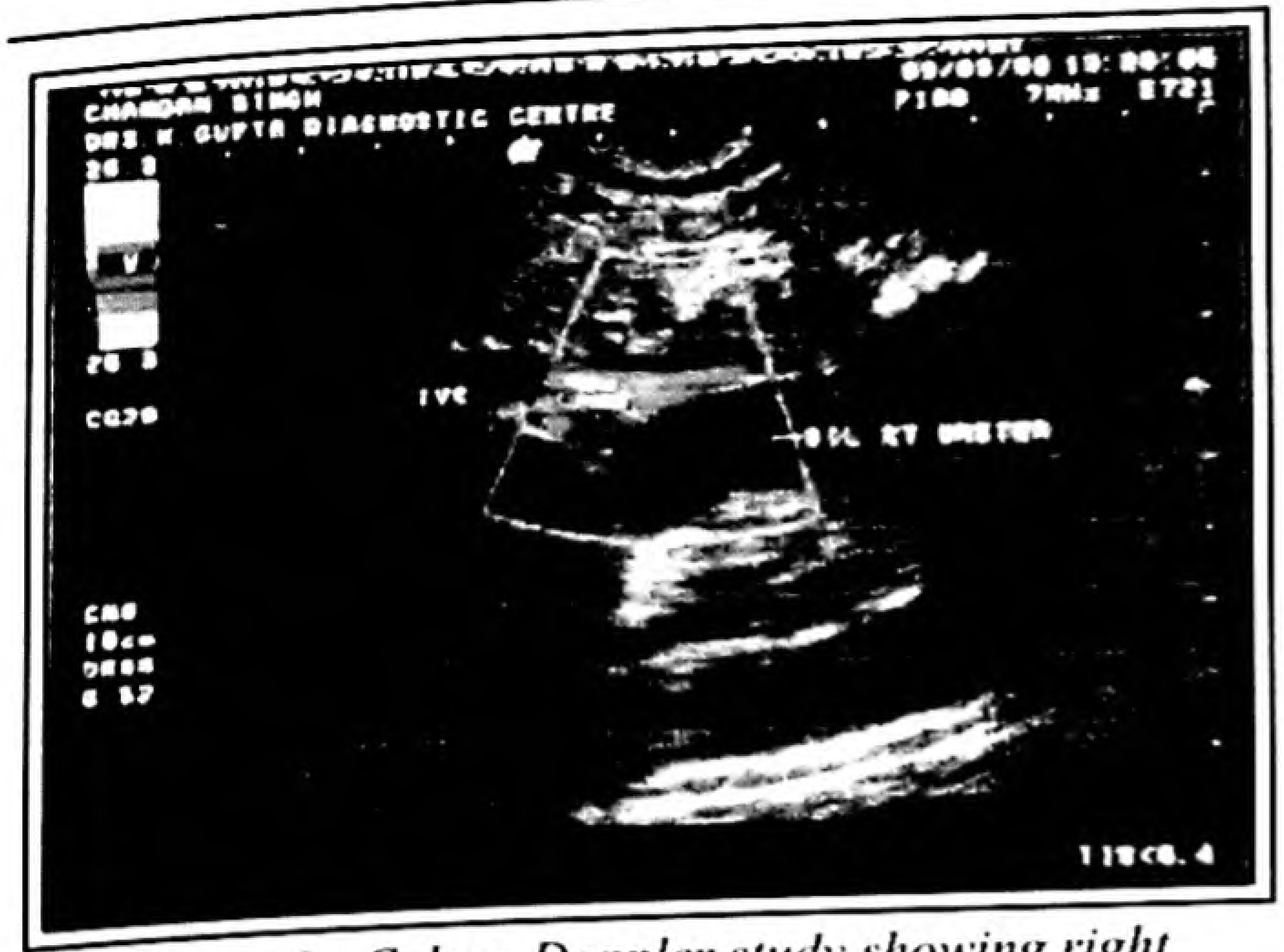

Figure 2 : *Colour Doppler study showing right retrocaval ureter*

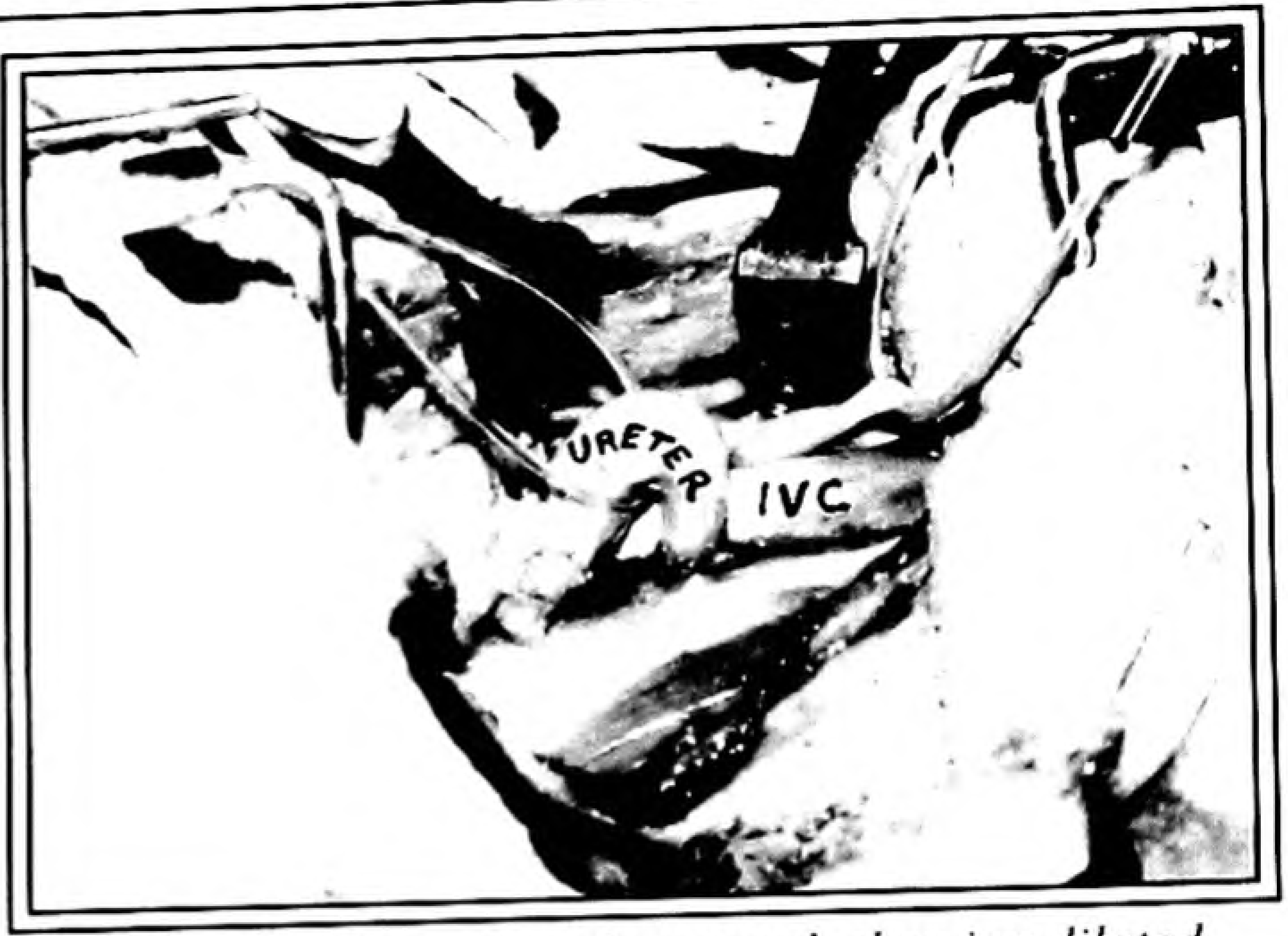

Figure 3 : *Operative photograph showing dilated right retrocaval ureter*

noninvasively utilizing three-dimensional CT.[3] Intervention is indicated in the setting of functionally significant obstruction. Standard operative repair is pyelopyelostomy / ureteroureterostomy. More recently, a laparoscopic approach has been utilized to accomplish the same result.[2]

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Aspergilloma In A Tuberculous Cavity

Rubina Shaheen. MD, Tehmina wani. MD, Rubina Lone. MD, Asifa Nazir. MD,

ABSTRACT

A case of Aspergilloma, occuring in a 26 year old female is described. The patient was operated in the CVTS department (SKIMS, Soura) and a solid globular mass 4 x 3 cms was removed and received in the department of Microbiology for histopathology and microbiological examination. Microscopic examination revealed branching septate hyphae and a fruiting body. Culture showed growth of Aspergillus fumigatus.

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INTRODUCTION

Aspergilloma, with the development of fungus balls may result from chronic allergic aspergillosis or from colonization of preformed cavities caused by other diseases.[1] Aspergilloma is caused by the mould (filamentous fungi) belonging to genus Aspergillus. There are about 900 species in this genus. They are among the most common fungi of all environments.

Aspergillus causes a number of diseases in humans ranging from invasive pulmonary aspergillosis in which the fungus is pathogenic and destroys the lung, to allergic broncho-pulmonary aspergillosis in which the lung destruction is the result of an allergic host response to the presence of aspergillous species, to Aspergilloma, in which the fungus grows as a saprophyte in an area of devitalized lung tissue. Overlap syndromes exist between these conditions including chronic necrotizing aspergillosis in which an aspergilloma may be locally invasive.[2]Aspergilloma secondary to cavitary disease is now considered to be a frequently encountered disease. According to a large survey conducted by British Tuberculosis Association it occurred in 12% of healed tuberculosis patients.[1]

CASE HISTORY

A 26 year old female presented with history of recurrent Haemoptysis, was admitted in the CVTS ward of SK Institute of Medical Sciences, Srinagar. A past history of tuberculosis was given by the patient for which a complete course of Anti Tubercular therapy was taken. Patient also gave the history of taking Itraconazole 200mg for 3 months, but without any relief of symptoms. Chest radiograph showed well defined round lesion with peripheral radiolucent rim at right lower lobe.

Patient was operated. And on operation a solid globular mass about 4 x 3 cms was removed and send for histopathological and microbiological examination. A KOH preparation was made from the material after proper processing as recommended. Microscopic examination showed dichotomously branched septate hyphae with a fruiting body. Fungal cultures were put up on Sabourands Dextrose agar both with and without antibiotics and incubated at 37 0C. Colonies on SDA grew after 2-4 days, and were white cottony, wooly in nature. LCB mount were made which showed morphology consistent with A. fumigatus.[2]

The patient was put on Ketaconazole 200 mg and responded well to treatment.

DISCUSSION

Pulmonary Aspergilloma is thought to be a benign saprophytic colonization of the lung with aspergillus. However aspergillomas may cause hemoptysis that is potentially life threatening. The diagnosis of an aspergilloma is established when radiographic features are found in a patient with serum precipitins positive for aspergillus species, with 95% sensitivity for aspergilloma.[3] The number of fungi other than aspergillus has been reported to cause Mycetoma

Key Words: *Aspergilloma, septate hyphae, ketoconazole.*

Figure 1 : Photomicrograph of fungus ball-400x.

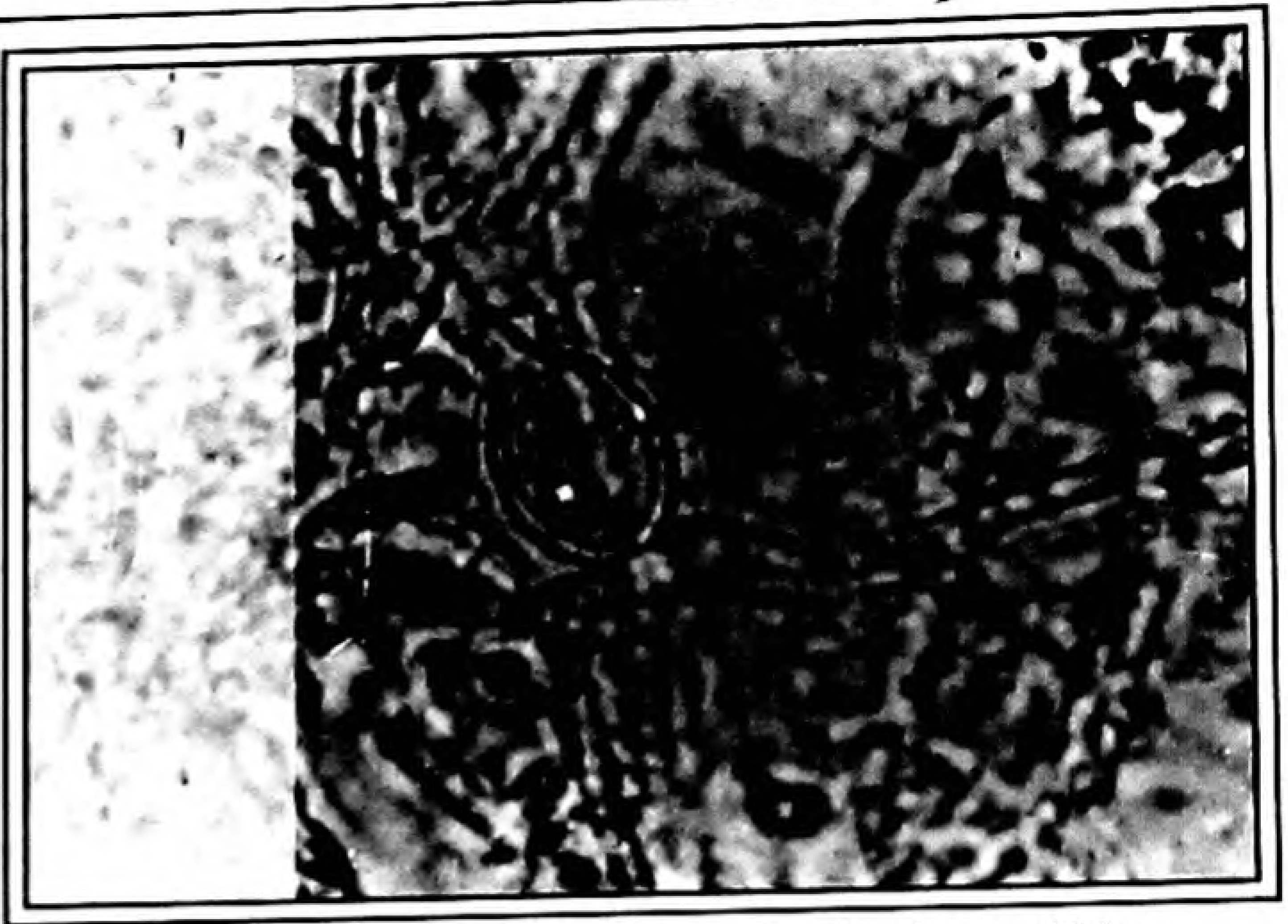

Figure 2 : Photomicrograph of culture-400x.

including P. boydii, Sporotrichum, Torulopsis, Candida and Streptomyces. This broad differential diagnosis reinforces the need to confirm the diagnosis by culture. The differentiation of Aspergillus species may be important since Azole therapy may have a role in treatment of Aspergilloma.[4]

In our case report the diagnosis Aspergillus fumigatus was confirmed by standard procedures. The patient had already taken Itraconazole for 2 months but the patient had not responded to it. The major limitation of Itraconazole is that it works slowly and would be risky to use in case of life threatening haemoptysis. The treatment of choice is surgical resection whenever it is feasible. However surgery is associated with high morbidity and mortality and technique ranks most complex in thoracic surgery. Antifungal chemotherapy has a potential for successfully treating Aspergilloma. It can be indicated for non operable symptomatic cases.[5] I/V Amphotericin in the treatment of pulmonary Aspergillosis has shown to offer no advantage over routine pulmonary toilet. The limitation of Itraconazole, Amphotericin B and high mortality associated with surgery emphasizes the need to identify fungus responsible for mycetoma as different fungi require different chemotherapy and positive culture might direct therapeutic decisions. A new drug in trial Voriconazole has shown reduction in mortality by 10%

CONCLUSION

Pulmonary Aspergilloma is thought to be a benign saprophytic colonization of the lung with Aspergillus. However Aspergilloma may cause hemoptysis that is potentially life threatening. Surgical resection is by forth most common treatment modality for Aspergilloma, but has been restricted to patients with severe hemoptysis and adequate pulmonary function.[6]

The need to establish Aspergillus species by positive culture is of importance in directing therapeutic decision, as many fungi other than Aspergillus has been reported to cause mycetoma so there are many alternate causes of radiographic patterns which may be misleading. Itraconazole is an orally active triazole with less toxicity and greater in vitro activity against A. fumigatus than Amphotreicin B. In addition the high tissue penetration of Itraconazole makes it a potentially useful agent for the treatment of the pulmonary Aspergilloma. The major limitation of Itraconazole is that it works slowly and would be risky to use in cases of life threatening hemoptysis. Voriconazole can be tried as an alternate therapeutic drug.[3]

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Minor Salivary Gland Duct Carcinoma

M.L. Bhat, Ruby Reshi, Rauf Ahmad, M.A. Laharwal, Zubaida Rasool, SM Kadri. N.Asima, Shylashree Chikkamuniyappa

ABSTRACT

Salivary duct carcinomas are relatively rare tumours and have been reported in both major and minor salivary glands. The duct carcinomas of minor salivary glands are rare and have an aggressive behaviour. The tumour is characterized by its resemblance to the duct carcinoma of breast and has aggressive biological behaviour with distant metastasis.

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Case Report

A 40-year-old female presented with parasthesias of left upper jaw and cheek with nasal obstruction for a period of 4 months. Patient also noticed heaviness of upper jaw with loosening of the teeth. There was no other significant history. On admission in the department of ENT (Oto Rhino Laryngology) SMHS Hospital, Srinagar attached to Government Medical College, Srinagar, Kashmir, India, the oral examination revealed an irregular mucosa covered mass, which extended from left upper incisor to whole length of gingiva with areas of ulcerations on the inferior surface. Nasal examination revealed pale, irregular mucosa along the floor of the left side of the nasal cavity. A single jugulodiagastric node of three cms diameter was palpable on left side. CT scan revealed a maxillary mass, which was extending into the orbit as well as into the nasal cavity. There were no signs of breast carcinoma. Radical surgery of Maxilla with neck dissection was performed and tumour mass was removed.

Pathological Findings Gross:

Three different tissue pieces were received the largest one measuring 8x7x3 cms comprising predominantly of bone and teeth. The other two comprised of tumour mass, which was measuring 5x2 cms.

Cut Section of the main tumour mass was greyish white homogenous. Tumour infiltration was observed in the maxilla as well in the upper gingiva. Areas of necrosis were present.

Light microscopy showed cribriform pattern with solid nests of round to oval tumour cells having comedo necrosis in the centre with dense fibrous stroma. Infiltrating component of diffuse invasive growth into adjacent bone and soft tissues was present. Scattered tumour cells in the fibrous stroma were also observed.

Discussion

Most of the duct carcinomas of the parotid gland have been reported in men in the age group of 38-76 years[1]. In the present case patient was a 40-year-old female.The tumour was present in the maxilla, and thereby the tumour originated from the ducts of the minor salivary glands. The parotid gland along with the duct was free.Asimilar case has been reported by C.Pesce[2]. However, many authors have reported salivary duct carcinomas with morphological criteria of comedo pattern in parotid gland ducts. The present case has comedo pattern morphology arising from the duct of minor salivary gland of the maxilla. A similar case of minor salivary gland duct carcinoma of larynx has been reported by Goel MH[3]

The tumour morphologically was of a typical duct carcinoma comedo pattern. The tumour cells were arranged in solid tumour nests and frequently had comedo necrosis with fibrosis/sclerotic stroma. The infiltrating desmoplastic component had similarities to ductal breast carcinoma[4]. The parotid gland and duct was uninvolved. No primary lesion in the breast was present not to misinterpret as metastatic deposits because of morphological resemblance to the tumour. Besides

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Key Words: *Minor salivary gland, Duct Carcinoma, Comedo, Maxilla .*

primary tumour, patient had a metastatic juglodiagastric lymph node, which shows aggressive nature of the tumour with widespread metastasis[5].

Our observations and those of the authors Lopes MA[6], and Chen TK[7] are the same. It therefore, seems appropriate to term this salivary duct carcinoma as infiltrating duct carcinoma of the salivary glands because of its morphological resemblance to the infiltrating duct carcinoma of breast as well as the aggressive biological behaviour with distant metastasis.

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Waardenburg's Syndrome

A Kashmir family afflicted with Waardenburg's syndromes is reported .A Ducth Ophthalmologist Waardenburg's described the syndrome in 1951 consisting of following features.

1. Dystopic Conthorum (Lateral displacement of medial canthi)
2. white forelock
3. Broad Nasal root
4. Heterochornmia Iridium
5. S.N.Hearing Loss (unjilateral or bilateral)
6. Confluent eyebrows.

We are presenting a family afflicted with Waardenberg's syndrome for its rarity.

The family compriserd of 6 members out of which 3 were afflicted with this syndrome .

The different features are shown in Table

The family reported to the OPD SKIMS Medical College Hospital Bemina were evaluated. Out of 6 members of the family 3 were having one or the other features of Waardenberg's Syndrome. The hearing was assessed by pure tone Audiometry.

Sensory Neural Hearing Loss (S.N.H.L) was observed in 3 cases (100%). All the patients has bilateral Sensory Neural Hearing loss.

Heterochromia Iridium was seen in 2 patients.

White forelock was seen in one case.

Dystopic Canthorum was seen in all the cases.

Waardenburg's syndrome an autosomal dominant syndrome has been classified into two types. Type I- patients with dystopia Canthorum.

WAARDENBURG'S SYNDROME

S. No.	Name of Patient	Age	Sex	Heterochroma Indian	Dystoprin canthroum	Deafness	Haring Loss in db	White forelock	Broad Nasal Root
1	Peer Rayees	14 yrs	M	+	+	+	Prof. S.N.H. loss R/ Left/ >120 >110	+	+
2	Mohd. Arif.	12 yrs	M	_	+	+	105 110	_	+
3	Asiya Jan	10 yrs	F	+	+	+	>120 93.3	_	+

Type II With out Dystopic Canthorum

Twenty five percent of cases With type I Waardenburg's syndrome are reported to have sensory neural hearing loss while 50% cases with type II have Sensory Neural Hearing Loss. The 3 cases reported by us have Type I Waardenberg's syndrome and all the cases had Sensory Neural Hearing Loss.(S.N.H.L)

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JK-Practitioner 2005, 12 (1) : 30

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Commentary

Mechanical Ventilation in Infants

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Mechanical ventilation has a definite impact on survival of sick infants but the investment in terms of money, time, skill and infrastructure has its limited use in developing countries. Mechanical ventilation is a rapidly advancing technology intensive science. Judicious use of it can reduce the mortality and morbidity to a great extent. Positive pressure ventilators are the main stay of providing mechanical ventilation in adults, pediatric and neonatal intensive care units. During positive pressure mechanical ventilation, the flow of gas during inspiration and expiration is driven by the airway pressure gradient between the airway opening and the alveoli. Pressure may be administered at the airway opening by a tight fitting mask connected to a ventilator-mask continuous positive airway pressure (CPAP) to a compressible bag attached to a gas source-bag mask ventilation, or to both-mask by level airway pressure. In a pediatric intensive care unit setting ventilator support is most frequently provided by intubation of the trachea with the placement of an endotracheal tube (ETT) and on occasion with a tracheotomy cannuli. The ETT adopter, which attaches to the ventilator tubing, is considered the airway opening. During inspiration the airway opening pressure is greater than alveolar pressure thereby driving gas into the lungs and inflating them. Exhalation is usually passive and occurs at the end of inspiration, Alveolar pressure becomes greater than airway pressure. Peak inspiratory pressure (PIP) occurs during maximum inspiration. Positive end expiratory pressure (PEEP) helps maintain the end expiratory resting lung volume. Thus the maximum pressure gradient is the difference between PIP and PEEP. The mean airway pressure is a measure of the average pressure to which the lungs are exposed during the respiratory cycle. Mean airway pressure can be increased by increasing PEEP, PIP, the ratio of inspiratory time to expiratory time (I: E ratio) or the inspiratory flow. Adjusting the ventilator to increase mean airway pressure is the therapy for hypoxemia that is not responding to an increasing fractional inspiratory oxygen (FIO_2). This probably improves oxygenation by decreasing the number of collapsed alveoli or redistributing lung fluid. Each complete ventilator breath has an allotted time for inspiration (I time) before the ventilator must cycle into exhalation time (E time). The sum of the I time and E time equals the allotted time per breath. The ventilator delivers a set number of breaths per minute, the ventilator frequency. The frequency determines the length of each breath. For example a frequency of 20 would result in 3 second per breath. Most ventilators allow setting either the I time or I: E ratio. For example if an I time of 1 second is ordered and the breath is 3 seconds the I: E ratio would be 1 second 2 second. If an I: E ratio of 1:3 is ordered then I time would be 0.75 second and the E time would be 2.25 seconds. The change in lung volume during the inspiratory period is defined as the tidal volume (VT). It is the volume above the functional residual capacity (FRC), that is the volume above the end expiratory lung volume. By convention the gas flow is in units of liter/minute and the time is in seconds, in pediatrics the VT is usually expressed in milliliters rather than as fractions of a liter from the alveolar gas equation to adjust partial pressure of carbon dioxide ($PACO_2$) either the VT or the ventilator frequency is changed.

Indications for mechanical ventilation.

1) Prolonged apnea. 2) $Pa0_2$ below 50 mm hg or Fio_2 above 0.80.This indication may not apply to the infant with cyanotic congenital heart disease. 3) $Paco_2$ above 60 mm Hg with persistent academia. 4) General anesthesia. 5) Frequent intermittent apnea

unresponsive to drug therapy. 6) Early treatment when use of mechanical ventilation is anticipated because of deteriorating gas exchange.7) Relieving work of breathing in infant with signs of respiratory difficulty. 8) Administration of surfactant therapy in infants with respiratory distress syndrome .9) Recently delivered premature infant with minimal respiratory distress and low supplemental oxygen requirement (to prevent atelectasis). 10) Respiratory distress and requirement of Fio_2 above 0.30 by hood.11) Fio_2 above 0.40 by hood. 12) Clinically significant retractions and/or distress after recent extubation. .

Types of ventilatory support.

1) Continuous positive airway pressure (CPAP) is usually administered by means of ventilator. Any system used to deliver CPAP should allow continuous monitoring of the delivered pressure and be equipped with safety alarms to indicate when the pressure is above or below the desired level .A continuous flow of heated ,humidified gas is circulated past the infants airway at a set pressure of 3 – 8 centimeter water (H_2O) maintaining an elevated end expiratory lung volume while the infant breathes spontaneously. The air oxygen mixture and airway pressure can be adjusted. CPAP is usually delivered by means of nasal prongs or nasopharyngeal tube. Prolonged endotracheal CPAP is not used because the high resistance of the endotracheal tube increases the work of breathing. especially in small infants.
2) Pressure limited time cycled, continous flow ventilators are used most frequently in infants with respiratory failure. Maximum inspiratory pressure (Pi) positive end expiratory (PEEP) and respiratoy timing are selected. The continous flow of fresh gas allows the infant to make spontaneous respiratory efforts between ventilator breaths(intermittent mandatory ventilation IMV). Good control is maintained over respiratory pressures. Inspiratory and expiratory time can be indepepdently controlled.
3) Synchronized and patient triggered (assistant/control or pressure support) ventilators. These ventilators combine the features of pressure limited, time cycled continous flow ventilators with an airway pressure, airflow or respiratory moment sensor. By measuring inspiratory flow or moment, these ventilators deliver intermittent positive pressure breaths at a fixed rate in synchrony with the infants inspiratory efforts (synchronized IMV or SIMV). During apnea SIMV ventilators continue to deliver the set IMV rate. In patient triggered ventilation a positive pressure breath is delivered with every inspiratory effort. As a result the ventilator delivers more frequent positive pressure breaths, usually allowing a decrease in the peak inspiratory pressure needed for adequate gas exchange. During apnea the ventilator in patient triggered mode delivers an operator selected IMV (control) rate. Ventilaters equipped with flow sensor can also be used to monitor delivered tidal volume continuously by integration of the flow signal. If available it may be the preferable mode of ventilator therapy in infants who are breathing Spontaneously while on IMV.
4) Volume cycled ventilators. Volume controlled ventilators are similar to pressure limited ventilators except that the operator selects the volume delivered, rather the peak inspiratory pressure. The pressure automatically varies with respiratory system compliance to deliver the selected tidal Volume. The system is complicated and requires more skill to operate. Because tidal volumes in infants are small; most of the tidal volume selected is lost in the ventilator circuitor from air leaks around uncuffed endotracheal tubes. A separate in line tidal volume monitor may be helpful. It is more expensive than a pressure limited device. Recent advances in technology have renewed interest in this mode of ventilation in selected situation.
5) The high frequency ventilator (HFV) is an important adjunct to conventional Mechanical ventilation .The recommended uses and the ventilatory strategies employed with high frequency ventilators continue to evolve with clinical experience. Three types of HFV are approved for use. a) High frequency Oscillator (HFO). b) High frequency flow interrupter (HFO) c) high frequency Jet ventilator (HFJ). Available HFVs are similar despite considerable differences in design. All HFVs are capable of delivering extremely rapid rates (300 –500 Breaths per minute, 5 to 25 HZ. 1 HZ = 60 breaths per minute) with tidal volumes equal to or smaller than anatomical dead space. These ventilators apply continous distending pressure to maintain an elevated lung volume, small tidal volumes are superimposed at a rapid rate. Expiration is passive (i.e. dependent on chest wall and lung recoil) with HFFI and HFJ machines while it is active with HFO.The mechanisms of gas exchange with HFV are incompletely understood. HFVs can achieve adequate ventilation while avoiding the large swings in lung volume required by conventional ventilators and associated with lung injury. Because of this they may be useful in pulmonary air leak syndromes (pulmonary interstitial emphysema, pneumothorax). HFVs are primarily used as rescue therapy for infants failing conventional ventilation.
6) Negative pressure. These infant versions of the adult iron lung are rarely used.Their use is restricted to older infants with neuromuscular problems who can thus be ventilated without an endotracheal tube.

Sedation and analgesic drugs that are used in selected cases on mechanical ventilation are a) Fentany' citrate.b) Phenobarbital. c) Medazolam. d) Propofal. e) Pancuronium.

Complications of mechanical ventilation. Lung injury may result from positive pressure (barotraumas), oxygen toxicity or excessive volume changes in the lung –volutrauma. Volutrauma may be manifested acutely as pulmonary air leak such as pneumothoraces, pneumomediastinum, pulmonary interstitial emphysema and bronchopleural fistula. Volutrauma may also be a cause of chronic repetitive lung injury. High mean airway pressure may affect the hemodynamics. An ETT may become obstructed owing to mucus, purulent material or blood from trauma to the airway. An ETT also may cause injury to the tracheal mucosa resulting in subglottic stenosis.prolonged intubation and mechanical ventilation may predispose the infant to nosocomal infections.

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Mental Health : Neglected For Far Too Long

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Mental, physical and social health, are vital strands of life that are closely interwoven and deeply interdependent. Mental health is crucial to the overall well-being of individuals, Societies and countries. Mental health includes subjective well-being, perceived self-efficacy, autonomy, competence, intergenerational dependence, and self-actualization of one's intellectual and emotional potential, etc.

Advances in neurosciences and behavioural medicine have shown that, like any physiological illnesses, mental and behavioral disorders are the result of a complex interaction between biological, psychological and social factors. Scientific evidence from the field of behavioural medicine has demonstrated a fundamental connection between mental and physical health. Research shows that there are two main pathways through which mental and physical and mental health mutually influence each other. Research has pointed to two main pathways through which mental and physical health mutually influence each other over time. The first key pathway is directly through physiological systems, such as neuro-endocrine and immune) functioning.

The second primary pathway is through health behaviour (such as eating sensibly, getting regular exercise and adequate sleep, avoiding ;smoking, engaging in safe sexual practices, wearing safety belts in vehicles, and adhering to medical therapies).

Health behaviour can affect physiology, while physiological functioning can influence health behaviour, resulting in a comprehensive model of physical and mental health, in which the various components are related and mutually influential over time.

The health behaviour of an individual is highly dependent on mental health, Individual psychological factors are also related to the development of mental disorders. Social factors such as uncontrolled urbanization, poverty and rapid technological change are also important. That relationship between mental health and poverty is particularly important: the poor and the deprived have a higher prevalence of disorders, including substance abuse.

Burden of mental disorders.

Mental disorders are common, affecting more than 25 percent of all people at some time during their lives. They are also universal, affecting people of all countries and societies, individuals at all ages, women and men, the rich and the poor, from urban and rural environments. They have and economic impact on societies and on the quality of life of individuals and families. Mental disorders are present at any point in time in about 10 percent of the adult population. Around 20 percent of all patents seen by primary health care professionals have one or more mental disorders. One in four families is likely to have at least one member with a mental disorder. These families not only provide physical and emotional support, but also bear the negative impact of stigma and discrimination. It was estimated that in 2000, mental disorders accounted for 12 percent of the total Disability Adjusted Life Years (DALYs lost due to all diseases and injuries. Common disorders, which usually cause severe disability, include depressive disorders, substance use disorders, schizophrenia, epilepsy, Alzheimer's disease, mental retardation, and disorders of childhood and adolescence. Factors associated with the prevalence, onset and course of mental disorders include poverty, sex, age, conflicts and disasters, major physical disease, and the family and social environment.

More than 450 million people today suffer from mental and behavioural disorders. Within next 20 years, depression will have the dubious

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distinction of becoming the second casue of the global burden of disease. Worldwide, 70 million people suffer from alcohol dependence, 50 million have epilepsy, 24 million have schizophrenia and another 20 million people attempt suicide every year.

Mental illness has a large impact on individuals, families and communities. Individuals suffer the distressing symptoms of disorders. They also suffer because they are unable to participate in work and leisure activites, often as result of discrimination. They worry about not being able to shoulder their responsibilities towards their family and friends, and are fearful of being a burden for others. It is estimated that one in four families has at least one member currently suffering from a mental illness. These families are required not only to provide physical and emotional support, but also to bear the negative impact of stigma and discrimination present in all parts of the world. While the burden of caring for a family member with a mental illness has not been adequately studied, but the evidence shows that it is indeed substantial.

Families in which one member is suffering from a mental disorder make a number of adjustments and compromises that prevent other members of the family from achieving their full potential in work, social relationships and leisure. These are the human aspects of the burden of mental disorders, which are difficult to assess and quantify; they are nevertheless important. Families have to often set aside a major part of their time to look after the mentally ill relative, and suffer economic and social deprivation because he or she is not fully productive.

The impact of mental disorders in communities is large and manifold. There is the cost of providing care, the loss of productivity, and some legal problems associated with some mental disorders (though violence is caused much more often by 'normal' people than by individuals with mental disorders).

Mental disorders more often, cause disability than premature death. One way to account for the chronicity of disorders, and the disability caused by them is the Global Burden of Disease (GBD) methodology. Aside from generating the most comprehensive and consistent set of mortality and morbidity by age, sex, and region ever produced, GBD also introduced a new metric - Disability Adjusted life Year (DALY - to quantify the burden of disease. The DALY is a health gap measure, which combines information on the impact of premature death and of disability and other nonfatal health outcomes. One DALY can be thought of as one lost year of 'healthy' life, and the burden of disease as a measurement of the gap between current health status and an ideal situation where everyone lives into old age free of disease and disability. DALYS for a disease are the sum of the years of life lost due to premature mortality (YLL) in the population and the years lost due to disability (YLD) for incident cases of the health condition. The DALY is a health gap measure that extends the concept of potential years of the life lost due to premature death (PYLL) to include equivalent years of healthy life lost in states of less than full health, broadly termed disability.

GBD 2000 estimates show that mental and neurological conditions account for 30.8 percent of all years lived with disability (YLDs). Depression causes the largest amount of disability, accounting for almost 12 percent of all disability. Six neuro-pysychiatric conditions figured in the top twenty causes of disability (YLDs) in the world include:

- unipolar depressive disorders
- alcohol use disorders
- schizophrenia
- bipolar affective disorder
- Alzheimer's and other dementias, and
- Migraine.

Mental disorders cause massive disruption in the lives of those who are affected and their families. Though the whole range of unhappiness and suffering is not measurable, one of the methods to assess its impact is by using quality of life (QOL) instruments. QOL measures use the subjective rating of the individual in a variety of areas to assess the impact of symptoms and disorders on life. Quality of life continues to be poor even after recovery from mental disorders as a result of social factors that include continued stigma and discrimination. Individuals with severe mental disorders living in long-term mental hospitals have a poorer quality of life than those living in the community. Unmet basic social needs and functioning needs are the largest predictor of poor quality of life among individuals with severe mental disorders.

Healthcare facilities

According to a WHO estimate, mental and behavioural disorders are estimated to account for 12 percent of the global burden of disease, yet the mental health budgets of the majority of countries constitutes less than I percent of their total health expenditures. The relationship between the disease burden and disease spending is clearly disproportionate. More than 40 percent of countries have no mental health policy and over 30 percent have no mental health programme, Over 90 percent of countries have no mental health policy that includes children and adolescents. In addition, health plans frequently do not cover mental and behavioural disorders at the same level as other illnesses, creating significant economic difficulties for patients and their families. Therefore, the suffering continues and difficulties grow.

There is a wide gap between availability and implementation of effective interventions, e.g., in India, treatment rates for schizophrenia and epilepsy are reported to be 20 percent of all cases in need of treatment compared to 80 percent for the same disorders in the West.

There is an urgent need to sensitize governments on the importance of mental health and to clearly define the goals and objectives of community-based health programme. Mental health services should be integrated into the overall primary healthcare system. Innovative community-based health programmes which are culturally and gender appropriate and reaches out to all segments of the population need to be developed. Well organized community-based care is urgently required besides increasing the number of psychiatric beds in the general hospitals, Governments must take the responsibility for ensuring that mental health policies are developed and implemented. The strategies like including the integration of mental health treatment and services into the general health system, particularly into primary health care must be pursued. Mental health care does not generally demand costly technology; rather, it requires the sensitive deployment of personnel who have been properly trained in the use of relatively inexpensive drugs and psychological support skills on an outpatient basis.

Community Mental Health

Community care is about providing good care and the empowerment of people with mental illness. Community care implies the development of a wide range of services within local settings. This process aims to ensure that some of the protective functions of the asylum are fully provided and the negative aspects of these institutions are not perpetuated. The characteristics of community care include:

- services that are close to home, including general hospital care for acute admissions, and long-term residential facilities in the community
- interventions related to disabilities as well as symptoms
- treatment and care specific to the diagnosis and needs of each individual
- a wide range of services that address the needs of the people with mental and behavioural disorders mental health professionals and community
- services that are coordinated between agencies
- ambulatory rather than static services, including those that can offer home treatment
- legislation to support the above aspects of care.

Psychiatric Diseases Hospitals should not be closed without community alternatives, and, conversely, creating community alternatives without closing mental hospitals. Both have to occur simultaneously, in a well-coordinated, incrementar way.

In many developing countries, mental health care programmes have a low priority. Provision is limited to small number of institutions that are usually overcrowded, understaffed and inefficient. Services reflect understanding of the needs of the ill or the range of approaches available for treatment and care. There is no adequate psychiatric care for the majority of the population. The only services are in large physiatrics diseases hospitals that operate under legislation which is often more penal than therapeutic. They are not easily accessible.

Moreover, those who could benefit do not take advantage of available psychiatric services because of the stigma attached to individuals with mental disorder and to the inappropriateness of the services provide.

Developing Mental Health policy

Governments need to assume the responsibility for ensuring these complex activities are carried out. One key role is to develop and implement policy. this includes identifying the major issues and objectives, defining the respective roles of the public and private sectors in financing and provision, and identifying policy instruments and organizational arrangements required in the public and possibly in the private sector to meet mental health objectives and it also means prompting action for capacity building and organizational development, and providing guidance for prioritizing expenditure thus linking analysis of problems to decisions about resource allocation. Policy formulation must be based on up-to-date and reliable information concerning the community, mental health indicators, effective treatments, prevention and promotion strategies, and mental health resources. This policy will need to be reviewed periodically. Policies should highlight vulnerable groups with special mental health needs, such as children, the elderly and abused women, as well as refugees and displaced persons in countries experiencing civil strife or war.

Policies should also include suicide prevention. Such policies need to ensure not only care for individuals particularly at risk, such as those with depression, schizophrenia or alcohol dependence, but also the control of alcohol and illicit drugs Mental health services need to be assessed, reevaluated and reformed to provide the best available treatment -and -care. The ways of improving services include: shifting care away from most hospitals, developing community mental health services, and-integrating mental health services into general health care. Intersectoral collabcration between government departments is essential in order for mental health policy benefit from mainstream government programmes. Moreover, mental health output is required to ensure that all government activities and policies contribute to and' not detract from mental health. This involves employment, commerce and economics, education, housing, other social welfare services and the criminal justice. A multilevel approach is required to overcome stigma and discrimination. Mass media and use of other community resources have an important role to stimulate change.

Advances in Neuroscience

The adult brain is made up of about 100 billion neurons and 1000 billion neuroglia. Advances in molecular biology will lead to the development of tools such as neuro-imaging and neurophysiology and permitting researchers to see the living, feeling, thinking human brain at work. Scientists have discovered how brain cells communicate to each other - signal transduction in the nervous system, which takes place in synapses. These discoveries will help in advancing the understanding of the normal functioning of the brain, and how disturbances in this signal transduction can lead to mental and behavioural disorders. This will also result in the development of effective new medications.

Behavioural Medicine

Behavioural science is concerned with the integration of behavioural, psychological and biomedical science knowledge relevant to the understanding of health and illness. Scientific evidence has demonstrated a fundamental connection between mental and physical health. Modern science is discovering that illnesses are understood to be influenced by a combination of biological, psychological and social factors. Moreover, thoughts, feelings and behaviour are now acknowledged to have a major impact on physical health. Conversely, physical health is recognized as considerably influencing mental health and well being. Mental and behavioural disorders have been shown to be associated with disruptions of neural communication within specific circuits. Almost all of the common severe mental and behavioural disorders are associated with a significant genetic component of risk. Risks of the common forms of mental disorders are genetically complex. These disorders are predominantly due to the interaction of multiple risk genes with environmental factors. Individual psychological factors are also related to the development of mental illness.

Human behaviour is partly shaped through interactions with the natural or social environment. This interaction can result in either desirable or undesirable consequences for the individual. Some mental disorders such as depression and anxiety can occur as the result of failing to cope adaptively to a stressful life event.

Real life is fraught with problems for many people, isolation, lack of transport and communication, and limited educational and economic opportunities are common difficulties. In addition, mental health services tend to concentrate clinical resources and expertise in larger cities, leaving limited options for rural population in need of mental health care.

The relationship between poverty and mental health is complex and multidimensional. Poverty and associated conditions such as unemployment, low education, deprivation and homelessness' are not only wide spread in poor countries, but also affect a sizeable minority of rich countries. The poor and the deprived have a higher prevalence of mental and behavioural disorders, including substance misuse disorders.

Poor countries have very few resources for mental health care and these are often unavailable to the poorer segments of society. The treatment gap for most mental disorders is high in developed nations, but in the poor population it is indeed massive. The promotion of positive mental health in all members of society is clearly an important goal.

Mental Health of Women

There is evidence that the course of mental and behavioural disorders is determined by the socioeconomic status of the individual. Across socioeconomic levels, the multiple roles that women fulfill in society put them at greater risk of experiencing mental and behavioural disorders than others in the community. Women continue to bear the burden of responsibility associated with being wives, mothers, educators, and carers of others, while they are increasingly becoming an essential part of the labour force and in one quarter to one-third of households they are the prime source of income. Moreover to the pressures placed on women because of their expanding and often conflicting roles, they face significant sex discrimination and associated poverty, hunger, malnutrition, overwork and domestic and sexual violence. Therefore, women have to be shown to be more likely than men to be prescribed psychotropic drugs. Violence against women constitutes a major social and public health problem, affecting women of all ages, cultural backgrounds, and income levels.

Changing role of psychiatric diseases hospitals

Mental health services form an integral part of the total health and social services essential for the well-being of a community. There is a consistent and reliable historical evidence to show that the need and demand for mental hospitals has changed as a result of social and cultural changes in the community and the scientific thinking in the mental health field.

To keep pace with pressures of change, the hospitals have to adapt themselves in the evolving role from centre of excellence to the community support. The community health movements in developed nations had a strong influence in keeping mental patients in the community rather than in isolated mental hospitals. Consequently, the role of mental hospitals changed to a large extent from mere custodial care units to therapeutic centres close to the community. Simultaneously, public awareness and public responsibility about developments in the hospital also pressurized many changes.

Till the early 1960s, mental health care was provided mainly by the mental hospitals in India. During the last four decades of the 20th century, with the opening up of Psychiatric units in General Hospitals and Medical Colleges, the role of mental hospitals has gradually become indistinct and secondary. The mental hospitals have suffered from neglect and indifference from health planners and administrators.

Today, India has 45 mental hospitals with bed strength of about 25,000 having specialized treatment facilities for patients with mental and behavioural disorders. An analysis of the available data reveals that since 1951, the number of hospitals increased by 50 percent and bed strength by more than 100 percent, while admissions to these institutions registered a tenfold increase. Mental hospitals have been suffering from shortage of professionally qualified doctors (psychiatrists, clinical psychologists, technicians and nurses) who are not attracted to work in the mental hospital setting, as compared with working in a general hospital setting which is generally more satisfying, and offers great incentives.

A significant point to note is that no mental hospital has been closed in spite of lack of financial support. The mental hospitals in India are going to stay. This poses a challenge both to health planners and professionals in the field. Many mental hospitals today offer a comprehensive care and rehabilitation, whereas some others remain the restrictive and confining 'asylums' in which custodial care takes precedence over therapy.

A review of the growth of mental hospitals over the years and their utilization pattern brings some very significant trends. During 1986 there were 45 hospitals, 20674 beds, 54759 admissions and 922 deaths. The average duration of stay of patients in mental hospitals has not increased even by 2002, since increasingly greater pre-selection of patients will reduce the relatively milder cases reporting to the mental hospitals.

Minimum actions required

Given the sheer magnitude of the problem, its multifaceted etiology, widespread stigma and discrimination, and the significant treatment gap that exists around the world, a public health approach is the most appropriate method of response. There is much to be accomplished in reducing the burden of mental illness:

- formulating policies designed to improve the mental health of populations
- assuring universal access to appropriate and cost-effective services (including mental health promotion and prevention services)
- ensuring adequate care and protection of human rights for institutionalized patients with most severe mental disorders
- assessing and monitoring of the mental health on communities
- promoting healthy lifestyles and reducing risk

factors for mental disorders
supporting stable family life, social cohesion and human development
research and development.

There is a need to enlarge mental health services to cover the total population. This can be done by extending training to all health personnel on essential mental healthcare, providing neuropsychiatric drugs in all health facilities, and bringing all of these activities under a mental health policy. Mental health care can be introduced in workplaces and schools. Initiate pilot projects on integration of mental health care with general healthcare. Use the mass media to promote mental health, foster positive attitudes, and help prevent disorders.

Quality Mental Health Care

Indicators for the quality of mental health care and the functioning of mental hospitals includes:

- general characteristics of the hospital and its catchment area
- general standard of in-patient care and its monitoring
- functional flow of patients at all levels of care
- functional inpatient care and analysis of the various facilities
- 'health revolving door' policy (ambulatory care, community support etc.)
- job description and task analysis
- effective role performance
- job satisfaction and morale
- sectorization of mental health activities (are inpatients grouped in wards_according to the geographical location of their homes to a sector medical/paramedical team, acute, forensic, children)
- satisfaction in patients and families
- community orientation to mental health activities(efforts to facilitate follow-up and rehabilitation care, efforts to increase early recognition and treatment of treatable mental disorders, integration of mental health skills into the training of health personnel and of agents of general development).

Governments have responsibility to give priority to mental health in their health planning. Several strategies that need to be incorporated in planning and implementation of healthcare facilities include providing treatment in primary care, making psychotropic drugs available, giving care in the community, involving communities, families and consumers, establishing national policies and programmes and developing human resources.

Looking ahead

Even with very limited resources, countries can immediately recognize mental health as an integral part of primary health care, and begin to organize the basic mental health services as a part of primary health care. Include the recognition and treatment of common mental disorders in training curricula of all health personnel. Provide refresher training to primary care doctors. Ensure availability of essential drugs in all health care settings. Support NGOs in public education. Train psychiatrists and psychiatric nurses. Initiate school and workplace mental health programmes.

Mental illness is not a personal failure. It does not happen only to other people. There is no justification for excluding people with the mental illness or behavioural disorder from our communities, there is room for everyone. Science and sensibility are combining to bring down real and perceived barriers to care and cure in mental health. Many of the individuals (with mental disorder) and families suffer

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Commentary

The Menopause and Hormone Replacement

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Definitions

Menopause is the irreversible cessation of the female reproductive cycle and menses, which follows from a permanent loss of ovarian response to gonadotropins. This change generally occurs spontaneously between the ages of 45 and 55 , with an average age of 51. Destruction or cessation of function of the ovary prior to age 40 is referred to as premature menopause. Simple hysterectomy terminates menstrual bleeding, but not ovarian function, and thus does not constitute a true menopause.

Physiology

Although it has long been known that the menopausal ovary is nearly depleted of primary follicles, the hormonal events of the perimenopausal transition have still not been completely elucidated. Cyclic bleeding ceases, and FSH and LH levels become greatly elevated in serum and urine. Usually the FSH increase is greater. The few remaining follicles do not respond to gonadotropin. Estradiol levels become extremely low (10 to 25pg/ML), and adrenal estrogen becomes the major circulating estrogen. Adipose tissue also provides estrogen.

Estrogen Deficiency State

Ovarian estrogen production is minimal after the menopause. Most estrogen is formed from peripheral conversion of androgen, 75% of which comes from the adrenal. There is considerable evidence that this rate of conversion is greater in obese women, who therefore tend to have higher estrogen levels postmenopausally. Estrogen deficiency results in various symptomatic manifestation in approximately 70% of post-menopausal women.

Hot Flashes (Vasomotor symptoms)

Nearly 50% of menopausal women have sudden sensation of flushing and extreme warmth, followed by sweating and sometimes shaking or tremor. They occur at irregular intervals from few to many times a day and may even awaken at night.

It is important to know that these menopausal symptoms may have their onset prior to actual cessation of menses, since estrogen levels fall progressively in perimenopausal and also changes in skin and core temperature and skin resistance, precede LH and FSH secretory rises by just a few minutes.

Osteoporosis

Bone is metabolically active tissue that is being constantly remodeled. Old bone is reabsorbed by osteoclasts, and new bone is deposited by osteoblasts. Whether new bone loss or accretion occurs depends on balance between the activities of these two kinds of cells. Osteoporosis or diffused osteo-penia, is a condition of reduced bone mass resulting from a relatively long period of negative imbalance in remodeling process. A rate of demineralization from 2 to 5% in a year occurs at menopause and has been documented with other cause of severe estrogen deficiency. During the first five years of menopause calcium is primarily lost from trabecular bone e.g. vertebrae, where as loss of calcium occurs equally from trabecular and cortical bone (hip and long bones) in later stages and eventually fractures may occur. Crush fractures of vertebral body predominate causing back pain, loss of height and stooped posture (dowager's hump). Osteoporosis is most common in caucasian and Asian than in African and American women. Studies have shown that at the age of 70 years, the bone mass lost in the woman is 25%. One in four osteoporotic fractures occur by mid sixties. HRT if given for 5 years reduces osteoporotic fracture by 35%.

Known risk factors for osteoporosis are estrogen deficiency states, cigarette smoking, family history, fine body structure (i.e. low peak bone mass at maturity) prolonged bed rest, sedentary life style, alcohol abuse, diabetes mellitus and chronic gluco-corticoid therapy.

Bone loss occurs with aging.

menopause, deficiency of minerals like calcium and vitamin D and can occur as a result of medications, diseases and surgical procedures like oophorectomy. The most common endocrine disorders that leads to bone loss includes abnormalities in sex hormones, thyroid hormones, parathyroid hormones, and adrenal steroids. BMD (Bone Mineral Density) detects osteoporosis before fracture occurs, predicts fracture chances in future. The hip BMD is best predictor of hip fractures and is recommended to be done first.

Osteoporosis is better prevented than treated. Goal of prevention is to achieve a peak bone mass genetically possible prior to skeletal maturity, which can be accomplished by:

i) Proper nutrition, sufficient weight bearing activity, minimising of risk factors like smoking, alcohol abuse and immobilization.
ii) By continuing these beneficial habits throu-ghout adulthood to maintain bone mass and
iii) By using ERT in women at risk.

For prevention (1500 mgs calcium and 400 IU vitamin D per day) decreases bone loss associated with osteoporosis. Regular exercise, good diet, avoiding smoking is important.

Psychological symptoms

The psychological response to menopause may range from little or none to profound alteration of affect and personality. Symptoms vary from minor irritability and emotional liability, mood swings, dementia to severe depression and withdrawal from usual activities. Sexuality also commonly affected, with women reporting an increase in libido while others show reduction in sexual interest, usually associated with loss of attractiveness and femininity.

Genital and Breast Atrophy

The female reproductive organs undergo striking changes at the time of the menopause. Public hair becomes sparse and lank, the labia majora lose their fullness and the skin and mucous membranes of the genitalia become thin and dry. The vaginal pH becomes more alkaline as glandular secretion of glycogen is lost. This change and the muscosal atrophy may result in a chronic vaginitis with itching, discharge, and local tenderness. Many women report decreased lubrication at intercourse and complain of dyspareunia.

The cervix uterus and fallopian tubes also shrink. Estrogen deprivation is implicated in the relaxation of pelvic ligaments and muscles, which may result in uterine or bladder prolapse and contributes to stress incontinence. At the same time glandular breast tissue involutes, and the breasts become shrunken and pendulous. There is a decrease in the erectile response of the nipple.

Estrogen Replacement Therapy and Hormone Replacement Therapy will be studied under following headings:

i) WHI (Women's Health Initiative) controversy.
ii) Risk and benefits of estrogen / hormonal replacement therapy.
iii) How HRT is taken.
iv) Various types of HRT therapies and non-HRT options.
v) Does duration of hormone therapy affect breast cancer risk.
vi) What kind of research is under way.

WHI controversy:

WHI was established in 1991 by Govt. It enrolled 17,000 post-menopausal women during the period 1993-1998 of age group 50-79 years with an intact uterus. The study showed that risk out weighs the benefits of using combined drugs as replacement therapy. It showed increase in breast cancer, heart attacks, strokes and blood clots. These risks out weighing the drugs actual benefits. A small decrease in hip fracture and decrease in colorectal cancers. Trial was stopped because of risk benefit balance, as the global indicator of overall risks was unfavourable and breast cancer crossed safety limits.

As WHI study among 10,000 postmenopausal women with a uterus (as opposed to those who have had hystrectomy) who are taking estrogens and progestin

- Seven more will have heart attacks.
- Eight more will have invasive breast cancer.
- Eight more will have stroke.
- Eighteen more will have blood clots.

Than with a similar group of 10000 women not taking these hormones.

- WHI has however continued studies with the estrogen only portion of the therapy.
- And studies of women on estrogen replacement therapy who have had hystrectomy.

Coronory Heart Disease:

WHI has shown that continuous combined HRT should not be used for primary prevention of coronory heart disease in a healthy population of largely asymptomatic women spanning three decades after menopause. In fact combined HRT was associated with small but significant risk of adverse cardiovascular events. Deaths due to cardiac disease were equivalent to 15 and 13 per 10000 women – years estrogen – progestin respectively.

At present in absence of any cardiovascular protection from continuous combined HRT in clinical trials, primary prevention of coronary heart disease depends on healthy lifestyle choices (smoking cessation, exercise, weight control) and pharmaceutical agents with established value for prevention or treatment of cardiovascular disease such as lipid lowering agents and anti-hypertensive agents.

Breast Cancer

WHI has shown in its study that breast cancer risk did not significantly increase during the continuous use of combined HRT for upto 4 years. The risk was statistically significantly elevated after 5 years of use.

Dr. Barnabei (Associate Professor of Obst. And Gynae. At MCW and Director of Division of Obst. And Gynae.) says that Scientists have shown progestin can act to influence breast growth and development, while reducing risk of uterine cancer. Article in January 26th, year 2000 in Journal. of American Medical Association reported increase risk of breast cancer in women on estrogen and progestin than in women who took estrogen alone.

Osteoporotic fractures:

WHI study confirmed reduction in osteoporotic fracture in women on combined HRT and can anticipate protection against it.

What Patient should know according to WHI Director Dr. Rossouw:

If the combination hormones is taken for short-term relief of vasomotor and other symptoms it may be reasonable to continue it for 2 to 3 years, since the benefit likely to outweigh risks. Long-term use for disease prevention should be re-evaluated considering the multiple adverse affects noted in WHI study. Evaluation in terms of vaginal bleeding of unknown cause, history of endometrial cancer, suspected breast cancer or history of breast cancer, chronic liver disease such as cirrhosis or history of blood clots

One can stop HRT any time, without major consequences, except for return of menopausal symptoms.

Conclusion of WHI study:

Although more than 2/3 of the women in WHI study were over 60 years, more than in any previous study and more than the sum of patients in nearly all previous randomized control trials. It was seen that estrogens for younger age group (40 to 45 years) gives protection and prevents plaque formation. Bad beyond more than 60 years because estrogens known to increase metalloproteinases and gelatinolytic activities in coronary arteries displaces atherosclerotic plaques already formed and so increases adverse cardiovascular events.

❖ **How HRT is taken:**

0.625 mg of Conjugated estrogen premarin is taken each day, unless you have had a hystrectomy, progestin is also taken to decrease risk of uterine cancer. Estrogen / progestin are available in both pill and patch form. Transdermal patch (estradiol 100µ per 24 hours).

HRT daily dose gives plasma level of 200 pg/l.

➢ Hormonal therapy is given in many ways:

- Continuous cyclic therapy.
- Continuous combined therapy.
  (Fixed Continuous dose of estrogen and progestin) – progestin 5 to 10 mg medroxy-progestrone for 10 to 14 days of each cycle.
- Long cycle therapy.
  (3 months continuous estrogen and progestrone)–progestrone for last 12 days.

American college of Obst. And Gynae. in April 2003 showed that continuous estrogen therapy advocated because no proven benefits to drug free interval seen.

Estrogen to be started with low dose at three monthly interval. If fails to control symptoms, change the type of estrogen, progestrone and also way of delivery.

❖ **Initiating and Planning of HRT therapy:**

➢ Perimenopausal.

➢ Postmenopausal

For therapeutic purposes HRT can be started at any time provided the symptoms warrant treatment and adequate pre-therapy assessment has been performed.

For prophylaxis, HRT is generally started after 6 to 12 months of ammenorrhea, when diagnosis of menopause is certain.

However, if hormone therapy has not been started at that time, it can be started in elderly geriatric age group even in 7th and 8th decade, but to be started with a very low dose of 0.325 mg than gradually increased to 0.625 mg after some months if necessary.

➢ **For how long therapy to be given:**

Therapeutic: The patient tend to discontinue HRT after acute symptoms disappear. However, the hormone should be gradually withdrawn, otherwise symptoms will recur on abrupt withdrawal.

Counseling is of paramount importance to encourage patients to continue with longterm use for prophylactic purposes. Studies indicate that BMD density declines after discontinuation of estrogens and approaches level of non-users, therefore it could be continued indefinitely, or other osteoprotective agents initiated.

Literature reports use of HRT as long as 20 years and more. Relayed therapy may be considered of using one HRT type for few years followed by other in case of longterm use.

In order to obtain maximum protection from osteoporosis women should start ERT at menopause. Studies suggest that 5 years may be adequate. Females without any menopausal symptoms and without risk factors for osteoporosis or heart disease may start HRT after 60 years and will gain similar osteoprotection compared to those in whom HRT is started at menopause.

Which therapies?

In cyclic estrogen and progestogen regimen the progestogen must be given for a minimum of 12 days. In any case there is no place for progestogen therapy of less than 10 days duration.

In long cycle therapy i.e. periods only once in three months or 4 times a year, progestogen must be prescribed for a minimum duration of 2 weeks and the dose of medroxyprogesterone acetate must be high i.e. 20 mg daily.

❖ **Benefits of HRT:**

- Prevents osteoporosis.
- Symptom relief from hot flushes, palpitation and vaginal symptoms.
- Decreased frequency of repeated vaginal infections.
- Decreased frequency of recurrent urinary infections.
- Less musculoskelatal symptoms of aches and pains and possibly sarcopenia (or muscle wasting).
- Less menopause associated mood swings, anxiety spells, depression.
- Decreased risks of colon cancer.
- Better verbal memory, vigilence, reasoning, motor speed and cognitive brain function in symptomatic women.
- Positive benefits regards Alzheiemrs disease.
- Better skin, better hair.
- Long term ophthalmic benefits.
- Long term dental benefits.

❖ **Risk Factors/ Disadvantages of HRT:**

They include breast cancer VTE, stroke, potentiation of pre existing breast cancer, increased risk of gall stones, depression, headache, premenstrual syndrome, breast tenderness, skin irritation, weight gain, menstrual bleeding. Because of substantial risk with prolonged use, a SERM, more affective with out side effects is found in EVISTA (tibolone) ,is considered as an alternative to HRT replacement therapy for women concerned about breast cancer, is approved in 19 European countries for treatment of postmenopausal symptoms and preventing osteoporosis. It is given without progesterone.

- **Contra indications for HRT:**
  - Active endometrial and hormone dependent cancer.
  - Active breast cancer.
  - Thromboembolic disease.
  - Vascular thrombosis and dependent venous thrombosis.
  - Suspected pregnancy or abnormal vaginal bleeding.
  - Benign breast disease have increased risk of breast cancer after 10 years of HRT.
  - Family history of premenopausal carcinoma of breast.
  - Fibroids which may enlarge with HRT.
- **Alternative therapies:**
  - **SERMS:** SERMS and Biphosphonates may be better alternative to estrogen replacement therapy for osteoporosis prevention in women with increased risk of breast or uterine cancer or in those women who are not willing to take estrogen replacement therapy. Studies have shown the beneficial effect of SERMS on osteoporosis prevention despite late initiation i.e, after 60 years. SERMS have the advantage of no effect on endometrium and potential beneficial effect on carcinoma breast (also called designer drug).
  - **TIBOLONE:** Tibolone is a synthetic steroid compound which has estrogenic, progestogenic and androgenic properties. It is considered more effective with least side effects and used as an alternative to conventional HRT. Replacement therapy for women concerned about breast cancer and is approved in 19 European countries for treatment of postmenopausal symptoms and preventing osteoporosis. It is given without progestrone. After oral administration, it is rapidly absorbed and metabolized into three active metabolites. It is used in dosage of 2.5 mg orally daily.
    - ✓ Action on breast: Tibolone displays a progestin profile or anti-estrogenic action in breast cells with favourable effects as far as breast tumorigenesis is concerned.
    - ✓ Action on endometrium: Tibolone induces endometrial atrophy, on the lower genital tract both karyopyknotic index and maturation index improve in women who are on tibolone, thus reversing the vaginal atrophy that takes place after menopause, whilst maintaining an inactive endometrium.
    - ✓ Action on bone: Tibolone has an estrogenic effect on bone of inhibiting bone resorption by reducing osteoclastic activity,.BMD has shown to increase both at the lumber spine and upper femur. This has been observed even with half the conventional dose, i.e, 1.25 mg instead of 2.5mg.
    - ✓ Action on lipids: It decrease trigylcerides, total cholesterol and lipoprotein (a) levels. However, it lowers HDL which is not a beneficial effect.
    - ✓ Vasomotor symptoms: Tibolone is effective in reducing episodes of flushing and sweating better than conventional HRT.
    - ✓ Mood and Libido: The estrogenic effect on the vagina decreases vaginal dryness and dyspareunia.
    - ✓ Other effects: Tibolone has been found to mitigate the menopause related decline in muscle strength.
  - **Comparison with Conventional HRT:**

    Tibolone has been compared with continuous combined HRT in several trials. However, tibolone causes fewer bleeding or spotting episodes and also fewer drop out rates due to bleeding and breast tenderness.
    - ✓ Tibolone has also been shown to increase BMD similar to that of conventional HRT.
    - ✓ The improvement in mood and libido is superior with tibolone.
    - ✓ Estrogen stimulates the endometrium, where as tibolone does not, but instead causes atrophy, so there are less episodes of bleeding and spotting with latter.
    - ✓ Tibolone does not cause any stimulation of breast issue and may in fact reduce the incidence of breast cancer. Estrogen on the other hand stimulates breast tissue with an increase risk of breast cancer after long term therapy. Also tibolone does not increase mammographic density of the breast, which is continuous with combined HRT, thus making follow up difficult in patients on long term continuous combined HRT.
    - ✓ Tibolone causes a reduction in triglycerides and total cholesterol. However, it reduces HDL levels in comparison with estrogens, which increases HDL.
  - **Tibolone in Indian context:**
    - ✓ It is more expensive than conventional HRT.
    - ✓ Women in India are particularly concerned about irregular bleeding and spotting, which is not a major issue with tibolone after the initial 3 to 6 months.
    - ✓ In India where mammography is not easily available and is expensive, it may be better to use a drug where experimental evidence suggest that it does not increase risk of breast cancer.
    - ✓ Hypertriglyceridaemia is the commonest lipid profile abnormality seen in Indian women along with increased Lp(a) levels. Tibolone definitely reduces the triglyceride and Lp(a) levels.
  - **Advantages of Tibolone:**
    - ✓ Tibolone is better used in patients with family history of breast cancer or treated cases on breast cancer, or who have been on conventional HRT for 5 to 10 years.

- ✓ It causes endometrial atrophy, so no irregular bleeding or spotting as compared to HRT.
- ✓ For the control of vasomotor symptoms associated with GNRH analogs for treatment of endometriosis and fibroids.
- ✓ Superior to conventional HRT for mood and libido improvement.
- ✓ Increases BMD, decreases cholesterol and triglycerides similar to conventional HRT.
- ✓ Does not increase mammographic density of breast ,which is continuous with combined HRT (so follow up becomes easier with tibolone).

- ♦ **Disadvantages / side effects:**
  - ✓ The main disadvantage with tibolone are reduction of HDL levels and its high cost.
  - ✓ Side effects include nausea in some women on initiation of therapy, but reduces in a few weeks.
  - ✓ Break through bleeding may also occur where patients need counseling in the first three months of treatment.
  - ✓ Breast tenderness which may be transitory.
  - ✓ Weight gain in some women.
  - ✓ Rarely increase in hair growth because of androgenic effect.

❖ **Non HRT modalities:**

- ♦ Keeping body weight under control, no smoking, avoiding alcohol, keeping cholesterol level and blood pressure under control, biphosphonates (fosamax) helps against osteoporosis, another EVISTA (raloxiphene HCL) belonging to SERMS group of drugs also protects against osteoporosis, lowers total cholesterol and prevents breast cancer.
- ♦ Last but not the least diet rich in micronutritients, multivitamins and phytoestrogens, biphosphonates and calcium, calcitonin and exercise are important non-hormonal modalities and life style factors that provide protection against osteoporosis and cardiovascular disease. They additionaly help in boosting the confidence of these elderly women and improving the quality of life.

❖ **Herbal remedies:**

- ♦ Some women have become doubtful about HRT. Many have grown interested in herbal remedies.
- ♦ There are two ways through which plants exhibit estrogenic activity in humans.
  - a) By acting as selective estrogen receptor modulators (natural SERMS) e.g. Phytoestrogens.
  - b) By acting as selective estrogen enzyme modulators (SEEMS) e.g. Saponins and Tanins.
- ♦ Common Indian dietary sources of phytoestrogens are as follows:

Isoflavonoids	Saponins
Bengal gram	Turmeric
Chick peas	Liquorice
Cherries	Ginger
Pareley	Wild yam
Apples	Fenugreek
Mung beans	Beet root
Whole grains	Root vegetables
Soya	Grains

- ♦ Commercially available Indian herbs for use in menopausal symptoms
  Amaliki (Emblica officianlis), Anant Mood (Hemidesmus indicus), Arjuna (Terminalia arjuna), Ashoka (Saraca indica).
- ♦ Common Western herbs used in menopause:
  - a) Balm (Melissa Officinalis)
  - b) Black Cohosh (Cimicifuga recemosa): A very good source of estrogen and progestrone and very popular in the West.
  - c) YAMS: A protein similar to progestrone hormone, but our body lacks the enzyme needed to convert it.

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Hyperbaric Oxygen Therapy

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HISTORY & INTRODUCTION

The modern clinical application of hyperbaric oxygen therapy began in the late 1950's, in parallel with an increased understanding of blood gas analysis and gas exchange physiology. Use of oxygen at high pressures, for treatment of decompression sickness had previously been documented,[1] but it remained an isolated medical curiosity.

Exposure of patients to hyperbaric pressures for therapeutic purposes had been introduced in several large facilities even decades before, following the principles elucidated by Paul Bert. These early applications, however, suffered from an over optimistic view. Hyperbaric spas flourished in 1900's in the North American continent and Europe.

Lack of a firm physiological basis and poor choice of indications caused scientific stasis in this field for many subsequent years.[2,3] In the early 1960's two institutions pre-eminently pursued the clinical aspects of high pressure oxygenation. Dr. Bakers from the University of Amsterdam developed the use of intermittent HBO, for the treatment of gas-gangrene. Second major focus of interest in this area was Royal Infirmary of Glasgow, where various anaesthetic and surgical aspects of HBO were applied and discussed. Among these were treatment of necrotizing infections and anaesthesia under hyperbaric conditions.

In 1968 Duke University in North Carolina expanded a long-standing programme of environmental physiology with the construction of inter-connected multiplace hyperbaric chambers.

Since 1970, most of the instructional courses research work and guidance has been provided by Underseas and Hyperbaric Medical Society (HQ in Kensington, MD).[4] This medical organization publishes guideliness for hyperbaric oxygenation every 2-3 years.

DEFINITION

Hyperbaric oxygen therapy is defined as inhalation of oxygen at increased pressure, for potential therapeutic benefit in a variety of clinical situations.

INDICATIONS AND RATIONALE

There are two sets of indications – first, those issued by Hyperbaric Medical Society :-

Gas Bubble Disease
- Air embolism
- Decompression sickness

Poisoning
- CO
- CN
- CCL_4
- H_2S

Infections
- Clostridial myonecrosis
- Other soft tissue necrotizing infections
- Refractory chronic osteomyelitis
- Mucormycosis

Acute Ischemia
- Crush injury
- Compromised skin flaps

Chronic Ischemia
- Radiation necrosis (soft tissue, radiation cystitis and osteoradionecrosis)
- Ischemic ulcers, including diabetic ulcers

Acute Hypoxia
- Support of oxygenation during therapeutic lung lavage
- Exceptional blood loss anemia (when transfusion is delayed or not available)

Thermal Injury (Burns)
- Brown recluse spider envenomation

Second set of indications are those published in Journal of Hyperbaric Medicine, which are updated from time to time (1999 latest).[5]

Regional Hypoxia
- Compromised graft flap
- Osteoradionecrosis
- Problem wounds and ulcers

Crush Injuries

Thermal Burns

Global Hypoxia

CO, CN intoxication
Severe anemia

Infection

Clostridial myonecrosis
Necrotizing fascitis
Refractory osteomyelitis
Rhinocerebral mucormycosis

Gas Lesion Conditions

Gas embolism
Decompression sickness

RATIONALE IN GENERAL

The principal rationale of HBO therapy is to decrease tissue O_2 tension. So it is reasonable that primary indications are conditions that include either regional or global hypoxia.

Another group of indications take advantage of the fact that specific micro-organisms are oxygen intolerant.

The increase in hydrostatic pressure inherent in HBO therapy provides an important part of rationale for use in gas lesion diseases.

Regional Hypoxia

Rationale for use – two fold.

1. Large O_2 gradient possible with an inspired O_2 partial pressure of 2 – 2.5 ATA allows some degree of O_2 delivery and O_2 tension elevation in the hypoxic zone, unless there is a complete absence of blood flow that may occur due to occlusion of large proximal blood vessels.
2. Second benefit – Stimulation of angiogenesis in previously hypoxic areas.

Examples

Compromised surgical graft / flap : HBO has been shown to improve the survival of those flaps which are clearly compromised after surgery. Numerous trials have demonstrated improved graft survival with intermittent HBO therapy.[6,7]

Osteoradionecrosis : HBO has been shown to be of benefit in more chronic forms of regional hypoxia such as osteoradionecrosis of head and neck. It is due to obliterative endarteritis and has been estimated to occur in upto 10% of patients receiving radiotherapy for carcinoma. It is characterized by necrosis, loss of tissue integrity and occasionally pathologic fractures.

Infection is generally secondary to loss of tissue integrity.

Repeated daily HBO therapy has been shown to promote repair and revascularization / neovascularization of necrotic one.

Enhanced angiogenesis is due to improved macrophage and fibroblast function.

Problems wounds particularly microvascular ulcers; here HBO reduces infection, improves healing and promotes granulation tissue base for subsequent skin grafting.

Crush injuries have also been successfully treated with HBO with the aim:- High arterial O_2 tension, improves oxygenation, causes modest vasoconstriction which may reduce post-traumatic edema and possibility of compartment syndrome.

Similar principles may stand for its use in patients of burns. Besides a decrease in cost and length of hospital stay has been reported.8, 9

Global Hypoxia

Two major categories of global hypoxia for which hyperbaric O_2 has been shown to be a useful therapeutic tool.

1. **First and most important is CO and CN intoxication.** CO intoxication interferes with O_2 delivery and utilization because of its high affinity for hemoglobin, the leftward shift of O_2-Hb dissociation curve and interference with specific catabolic enzymes such as cytochrome oxidase especially under hypoxic conditions.

   Results : Tissue hypoxia; Neurological depression; Homodynamic instability.

   Patients who have had symptomatic CO exposures and who recover are at risk for delayed (2-20 days) neurological symptoms presumably due to ischemia and reperfusion injury in the CNS.

   Principle of therapy : The increased concentration of O_2 molecules achieve with HBO competes with CO for hemoglobin binding sites and speeds up the elimination of CO.

   Patients with a history of unconsciousness, hemodynamic instability or extremes of age, current evidence suggests that early use of HBO therapy significantly reduces incidence of delayed neurological sequelae.[10,11]

   A similar rationale exists for use of HBO in cyanide poisoning, but because pure cyanide exposure is rare and can be effectively treated by antidote therapy, HBO therapy should be reserved for refractory cases, or cases of mixed CN/CO poisoning which may be commonly seen following smoke inhalation.
2. **Severe, acute anemia** is a clear example of global hypoxia. At 2.5–3.0 ATA inspired oxygen sufficient arterial oxygen content is dissolved in plasma to meet metabolic needs making HBO useful to support life until RBC's become available for transfusion. This indication, however, is limited to only several hours of continuous therapy or to cases where intermittent treatment is sufficient to bolster a marginal O_2 delivery.[12]

Infections

Rationale : Anaerobic infections often develop in hypoxic areas because of a lack of adequate host response to the infection, and ischemic hypoxic areas often develop because of infection.

Part of the rationale for HBO therapy remains the relief of ischemia and improvement of host response to infection.

Some micro-organisms are sensitive to high O_2 tension attained through HBO, which is the second rationale for its use.

Clostridia myonecrosis / Gas gangrene : Clostridium perfringens is O_2 sensitive. It is rapidly progressive and life threatening due to a series of toxins produced by it.

While toxins are O_2 stable their production by the bacteria is inhibited by elevation of tissue O_2 tension to 300 mm Hg and above.[13] Rapid diagnosis is essential and HBO should be used early besides giving parenteral antibiotics and surgical debridement.

Necrotizing soft tissue infections : HBO my be adjunctive to conventional to allow a host response. It may have a role in Fournier's disease.

Refractory osteomyelitis : Osteomyelitis that has not responsed to conventional therapy is labelled refractory ostomyelitis and has been successfully treated with HBO. Rationale O_2 tension in area of infection is increased. Leucocytes and osteoclast function is improved. Susceptibility of micro-organisms to antibiotics is also increased.

HBO therapy has also been used to treat life threatening fungal infections like rhinocerebral mucormycosis and published reports have shown encouraging results.

Gas Lesion Disease

Two principal types are :-

Decompression sickness : An increased pressure leads to an increased tissue content of inert gas especially for more soluble gases like nitrogen. On decompression the tissues eliminate gas which is in dissolved state if decompression is gradual. But if decompression is rapid, then the gas is in undissolved state in blood, lymph, tissues resulting in a gas phase and mobile bubbles about 100 microns in size, but which may aggregate if blood flow is sluggish and form bigger gas bubbles leading to symptoms. There is general agreement now, that both stationary and mobile gas bubbles are the aetiology of decompression sickness syndromes.

C/F:

- Vague, non-specific complaints such as unusual fatigue.
- Cutaneous decompression sickness :- Mottled rash and pruritus.
- Pain-only decompression sickness :- Deep-seated pain in an around major joints (particularly knee and shoulders) referred to as "bends".
- Inner-ear syndrome :- Tinnitus, vertigo a hearing loss.
- Pulmonary decompression sickness :- Fulminant and life threatening and fortunately uncommon characterized by dyspnea, substernal pain and pulmonary edema.

Caisson's disease : It is a chronic form of decompression sickness due to repetitive prolonged low pressure 2 – 3 (ATA) exposures as experienced by pressurised Caisson workers. There is :- Aseptic osteonecrosis, usually of long bones (femur, humerus), years after pressure exposures. It may be due to bubble formation in the marrow cavity, elevating medullary pressures and causing ischemia and necrosis.

HBO therapy is the primary mode of therapy in decompression sickness syndromes. Rapidity of administrationi remains an important determinant of successful outcome. But symptom resolution coincident with HBO therapy as long as a week after pressure exposure has been reported.

Gas Embosom : It is an acquired condition, whereby gas is admitted to vasculature and circulation. *Causes :-* Pulmonary barotrauma.

Iatrogenic / traumatic causes (surgery, catheters, trauma, abortions, orogenital sex etc.). Endogenous gas bubbles are seen in decompression sickness.

Small volumes of air / gas admitted in I/V lines (< 50 ml) is efficiently trapped by pulmonary circulation and causes little or no effect. On the contrary even smaller volumes of air / gas admitted to arterial side can be catastrophic. Venous emboli may be arterialized through shunts.

Rationale use of HBO therapy : Two principal components – pressure and hyperoxia. Increased hydrostatic pressure will cause a decrease in volume of emboli. Hyperoxia may improve O_2 delivery downstream of the obstructing emboli. For its success HBO needs to be instituted early. Hyperoxia also maximizes the gradient for elimination of gas (generally nitrogen) in the emboli.

PROCEDURES & EQUIPMENT

HBO therapy is administered in a hyperbaric chamber. They are of two basic types :- Monoplace; Multiplace.

Monoplace chambers : It is transparent, made up of acrylic, can accommodate a single patient and patient does not require a mask. *Primary advantage* :- Cost and space requirements.

Multiplace chambers : Usually of steel (some may be made up of aluminium), can accommodate more than two people and is pressurized with air, while the patients breathe O_2 from a tight fitting mask / circuit. *Advantage* :- is suitable for critically ill patients requiring ventilation, monitoring and constant attendance. Every monoplace chamber can be equippe with full range monitoring and critical care capability.

Pressure and duration :- It depends upon the indication. It ranges from 2-6 ATA for 2-6 hours.

Decompression sickness / Gas embolism may require prolonged, continuous saturation protocols. PIO_2 very rarely exceeds 2.8 ATA.

Emergency indications for HBO therapy generally require only 2-3 separate chamber treatments whereas problem wounds often require 40 or more daily sessions.

PRACTICAL ASPECTS OF CARE IN A CHAMBER

1. **Fire Safety :** Maintaining electrical components outside the chamber. Passing cables through insulated pass throughs.
2. **Electrical Defibrillation :** In a hyperbaric chamber defibrillation is controversial, because of possibility of poor skin contact, arcing and risk of fire. Large metal environment may predispose attendants to shock. Chambers needs to be decompressed prior to use of a defibrillator. Moreover the latency of bubble formation and onset of decompression sickness symptoms is sufficient to allow a brief excursion to 1 ATA for defibrillation, with subsequent return to previous pressures.

Miscellaneous

Flexible bags are preferred over glass bottles for I/V infusions so that pressure gradient between the chamber atmosphere and the fluid reservoir does not occur.

If glass bottles at all are to be used (NTG drip) it must be ensured that the gas space above the liquid is in constant communication with chamber atmosphere.

Battery driven syringe infusion pumps are best. Other closed gas filled devices which must be carefully monitored are tracheal tube cuffs / face mask seals both of which may be filled with an incompressible medium such as water or saline, instead of air, so that over or under-expansion does not occur and result in injury or leakage. An exceptional is flow-directed pulmonary artery catheters, here the balloon is left deflated with filling port open to atmosphere during HBO therapy.

Positive pressure ventilation may be performed with self-inflating bags and volume cycled ventilators are preferred.

RISKS & COMPLICATIONS OF HBO THERAPY

Barotrauma

Aural barotraumas is the commonest complication (minimized by topical or systemic vasoconstrictors or in specific cases by myringotomy).

Pulmonary barotrauma (rare but if suspected HBO therapy should be immediately stopped). Pneumothorax should be treated with chest tube insertions (likewise for pre-existing pneumothorax).

Decompression Sickness

Decompression sickness is unlikely if patient breathes 100% O_2 since little nitrogen uptake occurs. Chamber attendants are at higher risk, as they breathe air. If an attendant becomes unavoidably involved then decompression rate can be decreased.

Oxygen Toxicity

CNS toxicity muscular twitchings

Seizures

Narrowing of visual fields

Termination of oxygen inhalation is sufficient.

Changes of chamber pressure should await cessation of seizures as breath holding during seizures and concurrent decompression may increase the risk of pulmonary barotrauma.

Pulmonary toxicity : Can be reduced by intermittent air breathing.

Visual Function

Progressive myopia : Due to prolonged daily therapy as oxygen / pressure affects lens shape and refractory index. It is reversed within days to weeks after completion of therapy.

Cataracts : In unusually long course of therapy such as :- 150 to 200 daily exposures to 2 to 2.5 ATA and does not reverse after cessation of therapy.

Neonates : Prolonged exposure to even 1 ATA may induce retrolental fibroplasia.

Other Risks and Side-effects

Claustrophobia : This is usually seen in isolated patients especially in monoplace chambers. May require sedation for successful therapy. Sedation must be use cautiously as hypoventilation and hypercapina may lower the threshold for O_2 induced seizures.

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Role of Ambulatory Care in a Teaching Hospital

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Ambulatory care is fundamental arm of health care, as it is provided at all levels of health care system i.e., sub-center to tertiary care hospital.

One of the greatest revolution in modern health care is occurring in the area of ambulatory services. Ambulatory care is defined as the care provided to patients, who are not confined to bed and care can be provided at a clinic, health center or a hospital(1).

Keeping in view the demographic profile, increase in per capita income and a rise in the life expectancy at birth, there is a quantitative need for inpatient beds, thus stretching the already limited funds, particularly in under developed and developing countries. What is really needed is not many additional beds, but fewer patients. Thus a good outpatient department, its services correlated with and as an adjunct to preventive health practices and medical care patterns of the community, can be a potent force towards this end. It is an economic waste to utilize inpatient care, when ambulatory care would suffice(2).

At present India has one hospital bed per 1412 population, which is not sufficient to meet the challenges posed by demographic and epidemiological shifts. As against one bed/1000 population by 2000 A.D, we are still at 0.74 beds per 1000 population. According to an estimate India requires additional 1.5 lac beds from the current 15 lac hospital beds by 2012. These additional infrastructural facilities may require an estimated additional investment of anything around 10,00,000 crores (3). This is where ambulatory care, particularly in tertiary care hospitals can be of tremendous economic value.

It is a recognized fact that 20-30 percent of patients admitted to hospitals do not require full professional care normally received by acutely ill inpatients(4).

A study covering 300 American hospitals, Mccarrol, found that utilization of emergency department in hospitals as an outpatient facility has resulted in an increase of approximately 500 percent in number of visits since second world war(5).

American Hospital Association reports that from March 1964 to March 1965 this growth was 13 percent(6).

The importance of ambulatory care can be recognized from the fast that in a survey conducted by American Hospital Association in 1986, approximately 80% of 2200 responding hospitals said they plan to extend ambulatory services. Of the 7.6 billion U.S. dollars spent on hospital construction from September, 1985 to September 1986, 2.5 billion dollars were spent on funding ambulatory care projects(7).

Based on the growth of ambulatory care in the past, the projections for the future indicated that the average person will make six to eight visits as an ambulatory patient each year(4).

To meet this great challenge adequately, hospitals must be developed on certain basic principles, i.e.,

1. The building and its facilities must express the function of activities to take place with in it.
2. Maximum flexibility and expansibility.
3. Extra and internal patterns must be simple, clear cut, easily understood and as short as possible
4. Physical and functional separation in traffic flow of people and things as much as possible.
5. Labour saving devices must be utilized to reduce operational expenses(2).

Facility planning.

The hospital must establish a formal ambulatory care programme to suit its requirements. Various types of ambulatory care include integrated, separated, satellite and free standing.

Defined standard and established

policies and procedures serve as operational guidelines for providing efficient, safe care to patients. These standards include maintaining a safe controlled, and consistently monitored environment and keeping accurate records and active quality assurance programme should be achieved by organizing a defined committee to promote excellence in ambulatory care(8).

Special services of ambulatory care at a tertiary care hospital.

These are also called as extended ambulatory care services.

A. Day care center

A day care center provides the intermediate step toward re-introduction of the patient of certain disciplines into the community. Such center can be pressed into service for physical rehabilitation, medical oncology, psychiatric patients and certain types of surgeries. Approximately 40 percent of all surgeries, can be performed on an ambulatory basis. This avoids inpatient hospitalizations and susceptibility to nosocomial infection is negligible.

Six surgical procedures appropriate to ambulatory setting are:

1. Biopsy
2. Dilatation and curettage
3. Excision of skin lesion
4. Tubal ligation
5. Cataract extraction
6. Inguinal herniorrhaphy

Other non-surgical procedures, which can be performed on day care basis are:

1. Aspiration of breast mass
2. Bladder irrigation
3. Bone marrow aspiration
4. Bronchoscopy
5. Cardiac arteriography and cath etertzatron
6. Antineoplastic and antibacterial chemotherapy
7. Cystoscopy
8. Colonoscopy
9. Esophageal variceal sclerotherapy
10. Intercostal tube drainage
11. Liver biopsy (percutaneous)
12. Lumbar puncture (Diagnostic)
13. Renal biopsy
14. Sigmoidoscopy
15. Thoracentesis(9)

B. Self care units

Such units should be provided for ambulatory patients, who are convalescing or require diagnostic or therapeutic management. Such units can be used by new diabetics, who require precise dietary management, frequent laboratory tests, adjustment of insulin dosage, instructions on diet and self administration of insulin or postcoronary patient who must learn under close supervision, that how much activity patient can tolerate. In short, services provided are chiefly educational and supervisory.

C. Home care services

Another facet of ambulatory care that will become more and more important as our hospitals feel the impact of the trends in medical practice and of Government Health Legislation, is that of home care(10).

A home care programme makes it possible to extend needed services to the patient after he leaves the hospital and returns to his home in the community. This is co-ordinated through one central administrative agency. This agency should be the hospital but it may be another Community Health Agency such as Local Health Department, visiting nurse association or Primary Health Center.

Scope of ambulatory care services in Indian hospitals

For each hospital bed, about 500 out-patients are given service each year. This mean 30 crore out-patients are treated in out-patient department of the hospitals. Each person in one year suffers 2-4 episodes of sickness, varying from a mild to moderate to severe nature(11). If on an average only twice a person attends for medical help that exposes the nation's outpatient departments to 200 crore episodes. But in reality only 1/6th. Of these patients manage to seek medical care in outpatient departments of health care centers and hospitals. Others seek help from private practitioners, traditional healers and health workers. However, the share of general hospitals is more than tertiary care hospitals as only complicated cases are referred to higher centres.

Clinical management and ambulatory care.

In the Indian scenario, the outpatient departments of both general and tertiary care hospitals face two main problems as:

1. Too many patients
2. Inadequate hospital facilities

Both these problems lead to conflicts, mutual mistrust, poor quality of services and poor public relations and image(12). However this is not always true. Studies conducted at Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Srinagar, reveal fairly good number of patients are satisfied with physical facilities and waiting time for consultation(2) Quite contrary is the result of the study conducted in outpatient department of associated hospitals of Amritsar city(13).

It has been observed that most important factor for determining patient satisfaction in outpatient departments is waiting time at registration counter and consultation chamber(2) Hospital management has tried various appointment models like ,,Block,, and ":Individual" appointment systems to make outpatient services user friendly(14).

Regarding the utilization of the outpatient services, our study conducted at SKIMS 'reveals that situation is not disappointing, however corrective technical and administrative measures are needed to.

1. Have sound referral system, between the hospitals on one side and, rural/ urban based hearth care system on the other side.
2. Institution of health education and awareness, particularly in rural areas, so that urban based out-patient services are not taxed. out-patient department providing ambulatory care in a teaching hospital, is a link between the users and providers of health care delivery system. Its ful potential and exploitation will go a long way in providing cost-effective outpatient based health care compared to more costly inpatient based hearth care(2).

Conclusion

Ambulatory care is emerging as the epicentre and focal point(1). Demographic, epidemiological and quality pressures coupled with resource constraints demand a cost-effective' accessible and affordable health facility to vast majority of people. Ambulatory care' obviously is the alternative approach health planners and policy-makers must consider.

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What To Avoid in Patients With Skin Disorders

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It is often said' the best surgeon is who knows when not to operate'! If this saying is applied to our physician, can't we say it like this 'the best physician is one who knows what not to prescribe'? If you are a busy general practitioner or even a superspecialist physician and you see around two hundred patients per week, probability tells us that out of these two hundred patients there will be around twenty to thirty patients with a coexistent skin disorder, either active or inactive. This is based upon the statistical analysis of the world population as a whole. Do you know that 3% of our population in Kashmir suffers from psoriasis, one percent of our adolescent population suffers from acne of a treatable severity, about five to ten percent of our children have a topic eczema, five percent of our population suffers from drug hypersensitivities and so on. So isn't it worthwhile to know which of the drugs that you need to prescribe will aggravate or complicate your patients, skin disorders, because if it happens it is definitely going to hurt the confidence your patient has in you. Here is a list of the most important 'proscribing prescriptions.

1. PSORIASIS

Psoriasis will be considered first because it is the commonest skin disorder in our adult population and there is a really large number of drugs that can either exacerbate psoriasis or complicate it by causing a generalized pustular psoriasis. We still remember a patient of ours who had a really non-troublesome, localized psoriasis and who went into a life-threatening eryhtroderma just after he was given chloroquine for a malarial infection at Haryana. Here is the list of drugs, which should be avoided in psoriatics:

A, Antihypertensives like ACE inhibitors, beta-blockers and clonidine.
B, Antimalarials like chloroquine and quinine
C, Systemic steroids-their withdrawl can lead to generalized pustular psoriasis.
D, Gemfebrozil
E, Lithium.
F, Salicy lates [Nonselective NSAIDS]
G, Progresterone
H, Iodides
I. Terfenadine

2. VITILIGO

Vitiligo is also prone to get exacerbated by certain drugs, which include:

A, Proton pump inhibitors like omeprazole, pantoprazole etc
B, Beta-blockers.

3. ACNE

While every one of us knows about the drugs that exacerbate or precipitate acne like Isoniazid, Lithium, Systemic Corticosterods, anabolic steroids, oral contraceptive drugs etc, we often overlook certain other commonly prescribed agents that have the same adverse effects. One should be aware of the fact that certain B-Complex preparations can also aggravate acne. The reason is that many of these preparations contain bromides or iodides, which are common offenders in acne.

4, PEMPHIGUS

Pemphigus is also a relatively common skin disease in our adult population and we need to be aware of the drugs that can be either precipitate or aggravate pemphigus. The drugs area.

A, ACE inhibitors like captopril, enalapril etc
B, Rifampicin
C, D-penicillamine
D, Cephalosporins
E, Penicillins
F, Pyrazolone derivatives

5. LICHEN PLANUS

Lichen planus, another common papulosquammous disorder is sometimes caused by the drug intake. The clinical picture resembles the classical lichen incriminated in these lichenoid drug eruptions are:

A, Gold
B, Demeclocycline.

C. Quinine
D. Thiazides
E. Sterptomycin
F. Isoniazid
G. Beta-blockers
H. Captopril and enalapril
I. Carbamezepine
J. d-Pencillamine etc

6. DISCOID ECZEMA

Discoid eczema has been shown to get precipitated or aggravate by the following drugs.

A. Methyldopa
B. Gold

7. PORPHYRIAS AND OTHER PHOTOSENSITIVE DISORDERS

There are many systemic disorders in which photosensitivity is common. These include porphyries especially erythropoietic porphyries, connective tissue diseases like SLE, systemic sclerosis etc. in all these disorders the drugs that are known to cause or induce photosensitivity have to be avoided. Drugs that commonly induce photosensitivity include teracylines, quinolones especially sparfloxacin, thiazides, sulphonamides, griseofulvin, chlorpromazine etc.

DRUG HYPERSENSITIVITY

While any drug that has been developed till date can cause drug hypersensitivity or a drug eruption the propensity of causing such an adverse effect differs from one drug to another. While sulphonamides and penicillins among the antibiotic group and carbamezepine and phenobarbitol among the anticonvulsants are the most notorious for causing drug eruptions it is important to remember that any other unrelated antibiotic or an anticonvulsant can lead to a similar outcome. As far as skin (drug eruption) is concerned the following drugs are considered the safest:

A. Antacids
B. Erythromycin
C. Diazepam
D. Acetaminophen
E. Digoxin
F. Salbutamol
G. Aminophylline
H. Nitroglycerine
I. Prednisolone
J. Spironolactone

Student's Page

The Facial Nerve : The Anatomical and Surgical important

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Introduction:

The facial nerve is the **seventh cranial nerve** .It is one of the most important mixed nerves in the human body and more important as a motor nerve than as a sensory nerve and carries a great significance for the Anatomist, the surgeon and a clinician' The facial nerve is formed from elements of the second **(hyoid) branchial arch**, which supplies its motor and sensory components. The migration of the abducens nucleus rostrally, coupled with the movement of the facial nucleus caudally and laterally, gives rise to the uniquely curved brain stem course of this nerve.

It has three nuclei two motor and one sensory.

Motor Nuclei: Superior salivatory nucleus and facial Motor Nucleus.

Sensory : Solitary Nucleus

Anatomy:

This is discussed in terms of the nerve's supranuclear, nuclear, and, infranuclear segments.

The facial nerve is more important as a motor nerve than as a sensory nerve. The motor nuclei are Facial Motor nucleus and the Superior Salivary nucleus. The sensory nucleus is the solitary nucleus.

The Facial Nerve is motor to :

All muscles of face
To Platysma
To Posterior belly of Digastric and stylohyoid
To Stapedius
To three glands: Lacrimal, Sublingual, sub mandibular Glands.

The Facial Nerve is sensory to

Lacrimal, Sublingual, Sub mandible Glands.
Taste from ant 2/3 rd of tongue

The facial Nerve has two parts:

The facial nerve proper which is motor to facial muscles

Nervus intermedius which is the sensory and parasympathetic part of facial nerve.

Course of the facial nerve

After its origin from the brain stem The motor nerve then turns posteriorly at a sharp angle, forming the external **genu**. After the genu, the nerve enters the **facial canal**. At the posterior aspect of the middle ear, the nerve curves downward at which point a branch innervates the **stapedius muscle**. This minute muscle acts to dampen wide acoustic input surges from the delicate bony transmission system. The downward course takes it into the anterior wall of the mastoid process of the temporal bone. It is within this segment that **the chorda tympani** arises and marks the final separation of fibers that form the **nervus intermedius**. The chorda tympani transmits afferent taste sensation and efferent parasympathetic fibers to the submandibular ganglion. The motor nerve continues in the temporal bone until it exits at the base through the **stylomastoid foramen**. Three branches immediately diverge to **innervate the posterior auricular, posterior belly of the digastric, and stylohyoid muscles**. Running anteriorly approximately 2 cm from the stylomastoid foramen the nerve **divides into upper and lower divisions**, which traverse the superficial portion of the **parotid gland** .Pathology of the parotid may impair facial nerve function. **Eventually the nerve divides further into its five major branches (Pes Anserinus): temporal, zygomatic, buccal, mandibular, and cervical.** All of the muscles of facial expression are supplied by the facial nerve, with the exception of the levator palpebrae superioris, which is supplied by the oculomotor nerve.

NERVUS INTERMEDIUS

The **nervus intermedius of Wrisberg** is made up of all the components of the facial nerve except the somatic motor component. The superior salivatory nucleus is the origin of the visceral motor preganglionic parasympathetic nerve destined for both the **submandibular and sublingual glands** via postganglionic fibers from the submandibular ganglion. Along its downward course within the temporal bone, the preganglionic fibers separate to run with the chorda tympani.. Finally these parasympathetic fibers reach their destination in the submandibular ganglion. The lacrimal nucleus, often considered part of the superior salivatory nucleus, is the origin of the visceral motor preganglionic parasympathetic nerve destined for the lacrimal gland via postganglionic fibers from the sphenopalatine ganglion. These fibers run in the nervus intermedius, traverse the geniculate ganglion, and form the greater superficial petrosal nerve. On its course the greater superficial petrosal nerve joins the deep petrosal nerve carrying sympathetic information from the carotid plexus to form the vidian nerve, which ends in the sphenopalatine ganglion. Postganglionic fibers travel with the zygomaticotemporal branch of cranial nerve V to the lacrimal gland. Visceral sensory fibers may take two routes on their way back to synapse in the nucleus solitarius. Taste from the anterior two thirds of the tongue runs with the lingual nerve, chorda tympani, through the facial canal to the geniculate ganglion, and via the nervus intermedius to the brain stem. Sensation from the palate, nose, and pharynx runs with the maxillary nerve to the sphenopalatine ganglion, vidian nerve greater superficial petrosal nerve to the geniculate ganglion, and via the nervus intermedius to the brain stem.

VASCULAR SUPPLY

The vascular supply of the facial nerve is complex.

The posterior vertebrobasilar circulation supplies the proximal and middle portions of the nerve via the anterior **inferior cerebellar artery** and the **internal auditory artery**, respectively.

Further supply of the middle portion of the nerve comes from the **petrosal artery** via the middle meningeal artery of the external carotid.

Distal segments receive blood from the stylomastoid artery, which is also a branch of the external carotid.

The considerable overlap of the arterial supply, especially in the middle. Portions through the facial canal, make it unlikely that occlusion of any single artery will compromise facial nerve function.

CLINICAL EVALUATION OF INTEGRITY AND FACIAL NERVE FUNCTION

MOTOR FUNCTION

The majority of facial nerve functions can be readily assessed by observation:

1. Assymetry of the face
2. Stasis of food in the mouth
3. Inability to close the eyes
4. Dribbling of saliva through the angle of mouth
5. Difficulty in closure of the eyes
6. Abolishion of involuntary blinking
7. Loss of frowning of the forehead
8. Loss of wrinkling of the forehead
9. Loss of whistling
10. Flattening of nasolabial fold
11. Drooping of the angle of mouth

SENSORY FUNCTION

Although it is a function of overlapping sensory fibers from the trigeminal, glossopharyngeal, vagus, and greater auricular nerves, abnormal sensation along the posterior aspect of the external auditory canal and tympanic membrane may be an early indication of facial nerve dysfunction. Taste is most reliably tested by electrogustometry, which compares the amounts of electrical current applied to the anterolateral aspect of the tongue necessary to produce taste Perception.

AUTONOMIC FUNCTION

Salivary and lacrimal function can be quantified and evaluated through comparison to normal controls as well as to the contralateral side. Examples of tests of these autonomic functions are the salivary flow test and Schirmer's test of lacrimal ,function respectively.

FACIAL NERVE DISORDERS

Clinically, dysfunction of the facial nerve can be due to disorders of under activity or over activity; these can be further localized anatomically to the supranuclear, nuclear, or infranuclear segments.

DISORDERS OF UNDERACTIVITY

Supranuclear Lesions

Motor function of the upper face derives from both hemispheres. As a result, supranuclear lesions involving the face will spare the functions of forehead wrinkling and eye closure. In addition to the physical examination, computerized tomographic (CT) and magnetic resonance imaging (MRI) scans allow prompt identification of these lesions. The list of possible causes of supranuclear facial paresis is large. The major categories of causes are vascular, infectious, demyelinating and tumorous.

FOVILLE'S SYNDROME

Foville's syndrome is characterized by peripheral facial weakness, ipsilateral conjugate horizontal gaze paresis, and contra lateral hemi paresis . Lesions associated with these clinical features extend from the facial nucleus to the abducens nucleus and paramedian pontine reticular formation dorsomedially, and into the corticospinal tracts ventrally.

MILLARD-GUBLER SYNDROME

In Millard-Gubler syndrome there is a combination of contralateral hemiparesis, abducens palsy, and variable facial nerve palsy. Lesions associated with these clinical features lie more ventrally in the brain stem than those of Foville's syndrome, and they cause an infranuclear abducens palsy rather than a nuclear disruption..

MOBIUS' SYNDROME

Peripheral facial weakness and abduction deficits are central features of this syndrome, and in the majority of cases these findings are bilateral. A host of associated features have been described, including other cranial nerve palsies ptosis, musculoskeletal abnormalities, cardiac anomalies, craniofacial defects, and mental retardation. Nuclear agenesis of nerves VI and VII is considered the classic Syndrome, Furthermore, the etiologies postulated to date include congenital hypoplasias, vasculopathies, genetics, infections, neuronal degeneration andmuscular dystrophy. Imaging studies in nuclear cases, when positive, have shown brain stem atrophy and caudal pontine calcifications.

COMPLICATIONS OF AIDS

Supranuclear, nuclear, infranuclear lesions .can also be found in AIDS patients. The meningeal space is a common site of infranuclear involvement. Depending on the clinical location of disease, CT/MRI, Cerebrospinal fluid analysis, and serologic tests are very important ways of differentiating possible causes. Consideration should be given to the presence of toxoplasmosis, lymphoma (intraparenchymal and meningeal), nurosyphilis, tuberculosis fungus (especially Cryptococcus), and viruses (HIV, cytomegalovirus' and progressive multifocal leukoencephalopathy). Infranuclear Lesions when facial weakness is progressive and of a peripheral nature, lesions along the course of the facial nerve must be considered. By testing the various facial nerve functions, these lesions can be clinically localized and specific neuroradiologic techniques can be used to define further the extent of involvement and suggest a cause'

CEREBELLOPONTINE ANGLE LESIONS

The cranial nerves VII and VIII are enclosed in a common sheath as they leave the brain stem in the Cerebellopontine angle on their way to the internal auditory canal. Thus, a Combination of progressive facial weakness, tinnitus, hearing loss, dizziness, and periorbital dysesthesias (trigeminal nerve involvement) should alert the clinician to a lesion in this area.. Tumors of the cerebellopontine angle generally of a benign histologic character. The most common tumors are acoustic neuroma, meningioma, and epidermal cyst. The advent of MRI has made evaluation of the cerebellopontine angle simple. Initial workup may also include an audiogram and brain stem auditory evoked Potentials'

BELL'S PALSY (IDIOPATHIC. FACIAL PALSY)

Since Sir Charles Bell's classic descriptions of peripheral facial weakness Bell's palsy, by far the **most common type of facial palsy,** is a disease that typically affects adults 20 to 40 years, but persons of any age are susceptible' Men and women are equally affected. It is characterized by an acute unilateral infranuclear facial palsy. A subjective feeling of diminished taste or perverted taste (parageusia) on the involved side is reported by 30o/o of patients. It is often surprising to find cranial nerve signs, such as altered facial sensation, corneal hypesthesia, or tongue deviation in a case that is otherwise typical of Bell's Palsy. Broadly defined, this might not cause alarm if one considers Bell's palsy to be a viral disease, and thus capable of causing a mononeuritis multiprex. Although the cause of Bell's palsy is unknown, an infectious process probably accounts for the majority of cases; vascular and genetic causes account for some cases.

IDIOPATHIC CRANIAL POLYNEURITIS.

As the name suggests, multiple cranial nerve palasies are present at the same time in this condition. The abducens nerve is most frequently affected, but any combination is possible with the exception of the olfactory nerve. Face or head pain was almost invariable, and in one case this finding preceded any nerve deficits by more than 3 months. The disease is self-limited, but it tends to recur. Steroids are the mainstay of treatment. Idiopathic cranial polyneuritis should be distinguished from Guillain Barre Guillain-Barre syndrome, carcinomatous meningitis, and identifiable inflammatory or infectious causes.

TRAUMATIC FACIAL NERVE PALSY

Trauma to the head may result in facial paresis, which can often be hard to detect if accompanied by facial swelling. **cases of both immediate and delayed paresis** are seen. The natural history is for both groups to do well, although the delayed group probably fares a little better CT scanning to look for temporal bone fractures should be performed. Longitudinal fractures are more cornmon than transverse and seem to have a better prognosis. Although controversial surgical exploration in cases of immediate-onset total paralysis together with a transverse fracture should be seriously considered. Electrodiagnostic studies can be helpful, as in some cases of Bell's palsy

RAMSAY HUNT SYNDROME.(GENICULATE HERPES'OTITIC HERPES)

The association of facial paresis with herpetic eruptions along the ipsilateral external auditory meatus constitutes the Ramsay Hunt syndrome .patients frequently give a history of **a recent viral syndrome** and auricular pain that preceded the facial weakness and vesicular eruption. The extent of the herpetic involvement may not be limited to the distribution of the facial nerve. Other cranial nerve palsies in a mononeuritis multiplex fashion can be seen. Vesicles can involve any aspect of the ipsilateral face indicating trigeminal nerve involvement, and auditory and vestibular symptoms are frequent. The pain associated with this viral eruption is typically severe and often persists for weeks.

MELKERSSON-ROSENTHAL SYNDROME

Classically Melkersson Rosenthal syndrome comprises a **triad of recurrent infranuclear facial paralysis, orofacial edema (predominately of the lips), and lingua plicata** but all three features need not be present; only very rarely do they appear in combination. Onset can be at any age. The swelling may be biateral- despite unilateral facial paresis, or it may occur independent of the facial paresis, with the edema antedating the weakness by months to years. **Cheilitis granulomatosis** is seen on lip biopsy and helps confirm the diagnosis. Several causes have been put forth, such as inheritance, infection, autoimmunity, and allergic reaction. Treatment includes several drugs, such as **clofazimine and steroids**, as well as the surgical reduction of granulomatous tissue

UVEOPAROTID FEVER (HEERFORDT'S DISEASE)

As the name suggests, in its full presentation uveoparotid fever is characterized by **uveitis, parotitis, and mild pyrexia**. The facial nerve is the most commonly involved cranial nerve in sarcoidosis, and it is affected in 50%of cases of uveoparotid fever. The site of facial nerve inflammation is often within its path through the parotid gland, although it can be anywhere along its course as demonstrated by some patients with parageusia and reduced lairimation. The cause is probably nerve infiltration with noncaseating granulomatous material. An elevated serum angiotensin converting enzyme (ACE) level can be helpful.

ACUTE IDIOPATHIC POLYNEURITIS (GUILLAIN BARRE SYNDROME)

Although the typical presentation of Guillain Barre Guillain-Barre syndrome is an **ascending paresis with depressed tendon reflexes,** there are several variants that involve the cranial nerves to a greater extent. Another less common variant is facial diplegia with distal paresthesias. The acute or subacute onset of any combination of these signs should alert the clinician to this potentially fatal disorder, since **respiratory and autonomic involvement may occur.** Classically, motor nerve conduction studies reveal slow responses, and cerebrospinal fluid examination shows cytoalbuminologic dissociation.

PROGRESSIVE HEMIFACIAL ATROPHY (PARRYROMBERG SYNDROME)

Progressive hemifacial atrophy is clearly a syndrome, rather than a specific disease. The unifying characteristic of all cases is acquired **hemi facial atrophy**, which must distinguished from congenital forms and bilateral lipodystrophy. Additional manifestations have included **hyporeflexia seizures, trigeminal anesthesia, and dementia as well as the ophthalmologic manifestations of enophthalmos, lid atrophy tonic or irregular pupils, Horner's syndrome, Fuchs's heterochromic cyclitis, retinal vascular abnormalities, sclera melting, extra ocular muscle imbalance and palsies, and bony defects of the inferior orbital rim and floor.**

DISORDERS OF OVERACTIVITY

In any evaluation of unusual facial movements, the synkinetic movements seen after aberrant regeneration and the reflex grimacing movements created by trigeminal irritation must be considered first. Synkinetic Movements Synkinesis is defined as an unintentional movement following the initiation of volitional movement. Axonal compression or disruption along the course of the facial nerve may lead to involuntary or synkinetic movements. Several theories have been put forth, including facial nuclear reorganization, aberrant regeneration, ephaptic (fatse synapse) transmission, and kindling. All explain some components of involuntary facial movements, and electrophysiologic studies provide support for each theory. The complex nature of synkinesis is best explained by a nuclear origin. Aberrant regeneration refers to the resprouting of axons down incorrect myelin sheaths after nerve disruption.. Ultimately, misdirected neural firing leads to the synchronous contraction of unassociated muscle groups. Finally, kindling incorporates the concepts of both ephaptic transmission and nuclear reorganization, whereby anantidromic impulse from the ephapse of the nerve activates the facial nucleus, which then coordinates facial muscle contraction.

Supranuclear Disorders:

HABIT SPASM OF THE FACE (NERVOUS TWITCH. FACIAL TIC)

This disorder typically occurs in childhood and is characterized by stereotypical, repetitive facial movements that are reproducible and can be promptly inhibited on command. Motor tics can occur as an isolated disorder, or as a component of Tourettets syndrome. Treatment may be as simple as reassurance, or it may require more aggressive drug therapy.

FOCAL CORTICAL SEIZURES

Epileptiform discharges arising from the facial cortex of the motor homunculus can manifest as **gross clonic movements of the contra lateral face**. These movements, when closely inspected, are seen to involve contiguous cortical areas that serve a distribution beyond the facial nerve.

Postictally there can be a supranuclear type of paresis (e.g. Todd's paresis), representing exhaustion of the cortical tonic input. These patients should be considered to have focal cortical disease, and prompt neuroanatomic studies should be carried out to direct the appropriate treatment course.

ESSENTIAL BLEPHAROSPASM

Essential blepharospasm is a form of cranial dystonia limited to the orbicularis oculi muscles. **Excessive blinking** is the usual first symptom. This blinking gradually intensifies in character, insidiously becoming a spasm of the eyelid that is not under volitional control Although involvement may appear unilateral in early stages or far into the disease course, causing some diagnostic confusion with habit spasm hemi facial spasm, bilateral impairment is always found eventually. As the disease progresses, the eye closure may become so frequent and prolonged that the patients functionally blind and may withdraw from all social contact.

MEIGE'S SYNDROME (BLEPHAROSPASM-OROMANDIBULAR DYSTONIA,OROFACIAL-CERICAL DYSTONIA,BRUEGHEL'S SYNDROME)

Dystonic involvement of the lower cranial muscles (mouth retraction, jaw opening or closing, facial grimacing), neck, vocal cords, (spastic dysphonia), and limbs is often referred to as Meige's syndrome.

The presumed cause of cranial dystonia in an **upset in the normal dopamine balance** in the basal ganglia and brain stem. These studies have reported on (1) different responses to pharmacologic agents that exert their effect on the basal ganglia; (2) associated conditions that affect the basal ganglia and can produce secondary dystonia including **Wilson's-disease, encephalitis lethargica, and levodopa or neuroleptic use;** (3) associated conditions that affect the upper brain stem including **strokes and multiple sclerosis;** and (4) pathologic reports of cases in which abnormalities when evident have inconsistently found **gliosis and cell loss in the caudate, putamen, substantia nigra, locus ceruleus, midbrain tectum, and dentate nuclei**.

Satisfactory treatment for blepharospasm is best accomplished with **botulinum. A toxin injected into the muscles around the eye**. Several different medications have been tried, such **as tricyclic antidepressants, antichorinergics, neuroeeptics(including clozapine) dopamine depleters (reserpine, tetrabenazine), levodopa, cholinergics, clonazepam baclofen, and lithium** .One reason why such a varied number of drugs have been used in an attempt to treat cranial dystonia is that this disorder was initially considered a psychiatric illness. For the few patients who do not respond to pharmacotherapy, surgical options include **orbicularis myectomy, peripheral facial nerve avulsion, and peripheral facial neurectomy.**

Nuclear Disorders

FACIAL MYOKYMIA

Myokymia is a **continuous, undulating, involuntary movement of the facial muscles involving predominantly the periocular and orbicularis oris musculature** .The pathophysiology of facial myokymia needs to incorporate the variety of conditions known to be associated with it, including **brain stem tumors, pontine tuberculoma , cerebellopontine angle tumors, carcinomatous meningitis, sarcoidosis, syringobulbia, subarachnoid hemorrhage, multiple sclerosis, Guillain-Barre syndrome, cysticercosis, timber rattle snake envenomation, hypoparathyroidism, and Cardiopulmonary arrest**

Unknown specific changes in the micro environment of the motor neuron or its axon due to edema, demyelination, toxins, ischemia, destruction, or metabolic alterations are proposed. Treatment of this condition should be aimed at the underlying pathology. Symptomatic pharmacologic treatment options include carbamazepine, phenytoin and most recently, botulinum toxin.

Infranuclear Disorders

HEMIFACIAL SPASM

Rhyhmic, intermittent, unilateral facial twitching, which begins insidiously around the orbicularis oculi and spreads slowly over 1 to 5 years to involve all the muscles of facial expression, is characteristic of hemifacial spasm These bursts of clonic activity may last only seconds or eventually may become tonic and continue for periods of minutes to hours. The prolonged, severe contractions of facial musculature lead to annoying and frequently socially disfiguring, grimacing appearance with partial eyelid closure This is usually painless. Often, voluntary movements such as smiling, eating, talking, or raising the eyebrows may precipitate involuntary spasms. **Surgical decompression of the facial nerve, is the only permanent treatment** and has an 85% success rate. Non surgical management is most successful with **botulinum toxin' Alternative drug trials, which are effective 25% of the time, include carbamazepine, phenytoin, baclofen, clonazepam, and anticholinergics.**

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Can We Improve The Surgical Outcome In The Rural Institutions?

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COMMENT

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Quality by definition means " the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs". In the advanced countries the health administrators have moved a step further by focussing on TOTAL QUALITY MANAGEMENT. In our step up the phrase Quality Assurance is better suited as a goal as we are still in an early phase of development.

In simpler terms Quality Assurance for a surgeon can be termed as a state in which he can decrease his mortality and morbidity rates by once again resorting to the basic rules of surgical principles. The changes in simple procedures like Anti-sepsis, theatre discipline can go a long way in improving our patient care in the peripheral health care institutions.

When a patient is admitted to the hospital there are three possible outcomes

- He can leave the hospital in a *near perfect state* of health after the surgical procedure without any complications.
- There in some amount of *morbidity*. The surgeon is not able to fully correct the problem or some complication develops during the hospital stay.
- In some unfortunate case the patient *expires* during the surgical procedure or in the immediate post operative period.

Our health care delivery system in the field services is catering to a variety of surgical patients. From a simple surgical procedure like an excision biopsy to more complicated and extensive procedures like management of poly trauma patients, Gastrectomies, Nephrectomies the surgeon is the one to face it on every day basis. Therefore it becomes imperative that he comes up to a minimum possible acceptable standard with the means available to him. Looking for the best instruments, properly trained staff, etc will not help him to deal with the problem, but increase his mental frustration as it is not always possible to have these ideal things in our developing institutions in the rural health sector.

The idea of this discussion is to increase the patients leaving the hospital in the first group i.e in a near perfect state of health. This is the paramount duty to which we are bound by our principles and ethics. Nowadays there is constant interference from the media due to the invasion of satellite channels into our daily lives and even a small blemish is blown out of proportion both by the print as well as the electronic media. One more factor, which we are not confronted with yet, is the Consumer Protection Act that has changed the attitude of the patients as well as the Doctors in the Developed countries.

What are the main tools in the hands of the surgeon by which he can make an internal audit of himself and propose changes in his setup? The main tools at present would still be the mortality and the morbidity rates that are seen in patients under his care.

The death of a patient during some complicated procedure can take place even in the best possible centers of the world. But every death has to be explained to the attendants as well as to the administrators of the department. Above all the cause of the death has to be explained to the surgeon himself. Even though it is not possible to achieve a Zero Death rate still the surgeon should try his best to lower it. A surgeon who boasts that he has a zero complication rate is either not operating or is misleading the person in front. Even if the death rate of a procedure is well below the rate quoted in the Medical literature at his particular institute the surgeon should not relax. The Association of Surgeons of India recognized this fact and came up with an article in the September 2002 issue of its official Journal. With some modification to suit our interests in Kashmir valley, the points are discussed below. If a surgeon sticks to these basic principles he can decrease his failure rate appreciably.

1. Do not feel inferior in your work. You might be doing simple surgical procedures under local anaesthesia. Try to improve the outcome of this

procedure only.

2. Help your self. Do not think that any one will come from the skies to help you out of an ugly situation. The best Hand which can come forward at the times of need is right at the end of your Arm.
3. Do not hesitate to ask for help even if it is from a junior person in the vicinity, instead of waiting for an experienced person who might not be reachable. You are dealing with a human being and your ego should not come in the way of the treatment.
4. Stick to the Gold Standards of Surgery. These have been laid down by people after a thorough research.
5. Be aware of your limitations. If you are not well versed with a particular procedure do not try to do it.
6. Do not try to enter into unknown waters. Research is good but procedures which can cause extensive blood loss can lead to trouble.
7. Update your knowledge regularly by way of books, journals and C.M.E. programmes. Our brains need a regular repetition.
8. Develop your own surgical team. No one has the time to train your people. You have to choose the best from the persons around you even if they are not meant for the job as per their profile.
9. Communication with our patients and the attendants is not in our priority list. Try to explain the possible outcomes of the procedures. A consent from the patient and the attendants has to be an INFORMED CONSENT in a language that the patient and attendants understand. Do not treat it is a piece of paper only.
10. Be aware of the Consumer courts. They are here and they are here to stay.

The second tool in the hands of the surgeon for assuring quality care is the Morbidity rate in which the infection rate of the surgical wound is the most important. The infection rate as per the international literature as per the individual case is divided into three groups.

GROUP A= Less than 2% wound infection rate as in clean cases like Excision Biopsy, Herniotomy and Laparoscopic Cholecystectomy.

GROUP B= 2-5% as in clean contaminated case of acute Appendicites, Open cholecystectomy,

GROUP C= More than 5% as in peritonitis, Empyema Gall Bladder, Perineal Gangrene.

If the surgeon is experiencing a rate of infection than the above quoted ones there is a serious breach in his antisepsis and asepsis method and a complete relook is needed to identify the cause of breach and remedial measures need to be instituted.

The surgeon is involved in three stages whereby his active part can result in improvement of Quality.

Pre operative Stage.
Intra operative Stage
Post operative stage.

PRE OPERATIVE STAGE.

In the pre op phase to improve quality of the care there are certain points which the surgeon can utilize.. A thorough clinical History and examination is the most important thing in the hands of the surgeon that can increase his diagnostic capability and help in improving the quality of his surgical work. To increase the accuracy of the diagnosis he should try to ensure that his laboratory back up is good. Sometimes a patient has covert de-arranged renal or liver functions which can cause complications in the post operative phase. A patient can have undiagnosed Diabetes Mellitus which can hamper wound healing and prolong Hospital stay thereby increasing the chances of Nasocomial infections. Sometimes patient can have bleeding disorders that can prolong the surgery due to increase of bleeding from the operative site. All these are preventable if a person is aware of these conditions and tries to rule them out in the pre op phase only. This can automatically improve the quality, as the complication rate is reduced.

The change in the health care delivery systems of our state is the need of the hour. If the hospital is providing the services of Resident Doctors in the wards (Ideal and desirable situations) he is required once again to examine the patients thoroughly. If some investigations are required he should immediately get them done. There should be a close co-operation between the resident and the surgeon to achieve an excellent outcome in majority of the cases. It is the duty of the surgeon in presence of the attendants, the senior Nurse and the Resident Doctor to obtain an INFORMED CONSENT in a language that the patients and the attendants understand. The surgeon should explain to the patient the procedure that he or she is to undergo in simple terms. The outcome and the possible Known complications should be discussed. The surgeon should also inform the patient about the Alternatives to the procedure if any. Most of the times unnecessary problems arise because of the poor communication between the consulting doctor and the patients hence repeated efforts are required to overcome it. False hopes should not be given.

The senior nurse of the ward is one of the most important persons on whom the quality of the surgical procedure depends. She has to identify the right patient, ensure that the pre operative advice is instituted including use of anti-boitics and tetnus toxoid, check the intra venous fluids and injections etc. It is advisable that a proper cleaning and preparation of the patient is done. Reducing the congestion in the ward to prevent spread of infection is one of the most important duties of the senior nurse. Patient should be sent to the theatre in properly autoclaved theatre suit. The procedure of shaving the part should be replaced by clipping the excess hairs in the operative site as lot of abrasions are caused by improper shaving of the area.

INTRAOPERATIVE STAGE.

To improve the quality of our surgical procedure we should aim at developing IDEAL THEATRE COMPLEX in our district and Sub District Hospital with adherence to the basic principle of Antisepsis and Aseptic techniques. An Ideal theatre complex in rural set up should have minimum 6-7 rooms with each room having its own designated function. It should be preferably housed in a separate wing away from noise and other forms of pollution in an upper storey. The theatre should have double doors and they should be swinging in both directions. The theatre should have steel or concrete shelves. Wood or ply wood use is not desirable as they can house pathogenic bacteria. The walls should be Tiled or Marbled to make them easily washable. The roof should be concrete and smooth. Paint should not be used as it peels off due to water vapors especially during winter months when the temperatures are sub zero in our valley. Special emphasis should be laid on the ventilation and lighting of the theatre. Weekly fumigation should be done regularly to decrease the bacterial content of the surroundings. Wet mopping of the theatre should be the routine practice.

The Linen and Gowns used for surgeries should be clean and Autoclaved after each procedure. The caps and Masks should be of disposable variety and the theatre personelle should be asked to cover the nose as it is the place where 50-75% population harbors pathogenic bacteria which can lead to increased incidence of sepsis. A Mackintosh worn under the gown of the operative team decreases the transmigration of the skin bacteria.

The instruments and the trays used in the operative procedure should be Autoclaved in a high pressure system at 132 degree centigrade. At the end of the procedure the outside of the packs should not have wet spots and the change in weight gain due to moisture should be less than 3%. Sharps like scissors should be Autoclaved at 80 Degree centigrade with formalin injection cycle. If same is not available then they can be sterlized chemically.

One important aspect that has been neglected in our theatre is the THEATRE DISCIPLINE. This factor is directly influencing the overall quality. The Theatre supervisor should be entrusted with this job to ensure uniform patterns on every day. He should allow only the authorized personelle into the theatre suite after they have changed into proper theatre dress. Regular check ups of the staff working in the theatre should be done and any member who reports ill should be isolated to prevent the disease from spreading.. The theatre supervisor should ensure proper cleaning of the theatre and the instruments. His duty includes checking the Autoclave and other equipment. It is duty of all the staff members to adhere to the standard theatre discipline including the senior surgeons. Observers with permission should be limited to minimum

Special attention must be paid to prevention of Human Immuno deficiency Viral infection as per the UNIVERSAL PRECAUTIONS. If a patient of H.I.V or Hepatitis B positive status is to be operated then the whole surgical team has to be informed about it and extra precautions instituted

The modern methods for prevention of Infection in a Clean wound as laid down by the World Health Organisation are *gentle handling of tissues, sharp dissection, good haemostasis and accurate tensionless approximation of wound edges during closure.* If these principles are followed to the spirit than our infection rate can drop further.

POST OPERATIVE

In the post operative stage the surgeon should ensure that all his orders regarding Drugs and Dressings are carried out in a proper manner. The Nurse Supervisor has the duty of carrying out all the orders. Dressings should be autoclaved and No Touch Technique should be employed when wounds are being dressed. It would be highly desireable if infected patients are separated from clean case to prevent nasocomial infections from spreading. Bio Medical waste disposal is an important aspect of hospital practice. Proper Disposal of the bio medical waste as per the guidelines is essential. It is desirable that the patient is discharged at the earliest from the ward to prevent Nasocomial infection.

A CONTROL OF INFECTION TEAM for the hospital as a whole is one the requirements for improving the performance of the institution. It should be headed by a Surgeon or a Microbiologist if one is available in the Hospital. A senior nurse should be part of the team. The job of the team includes Vigilance, imparting Knowledge and Defining policies for control of infection.

In the recent times the introduction of Day Care Surgery and Minimal Access Surgery (Laparoscopic Surgery) have had a positive impact on the overall quality imparted by the surgeon. It remains to be seen as to how it affects our system. But if we adhere to these basic principles our quality will show a dramatic improverment.

WITH INPUTS FROM

- *The Indian Journal Of Surgery. Special Issue on Rural Surgery. Sep 2002*
- *General Surgery at the District Hospital. World Health Organisation.*
- *Baily & Love Short Practice of Surgery.*

Images-2004

The Year of the Conferences

agar was host to a number of Medical Conferences in .Some of the major ones

-30 May	XXIII North India Orthopaedic Conference
-05 June	24th. Annual Conference of the Northern Chapter of Associations of Surgeons of India (NC-ASI)
-18 July	National Level Conference on "Infectious Disease and Clinical Microbiology Update".
-25 July	Multi Disciplinary International Medical Conference, sponsored by the British Kashmiri Medical Association(BKMA)
15 Sep.	North West Zone AIOCON XXVIII Annual Conference

HIGHLIGHTS OF THE BKMA CONFERENCE

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ANCER

The Inagural Session

2

Special Presentation from **Farooque A Khan** (USA).

3

The Audience

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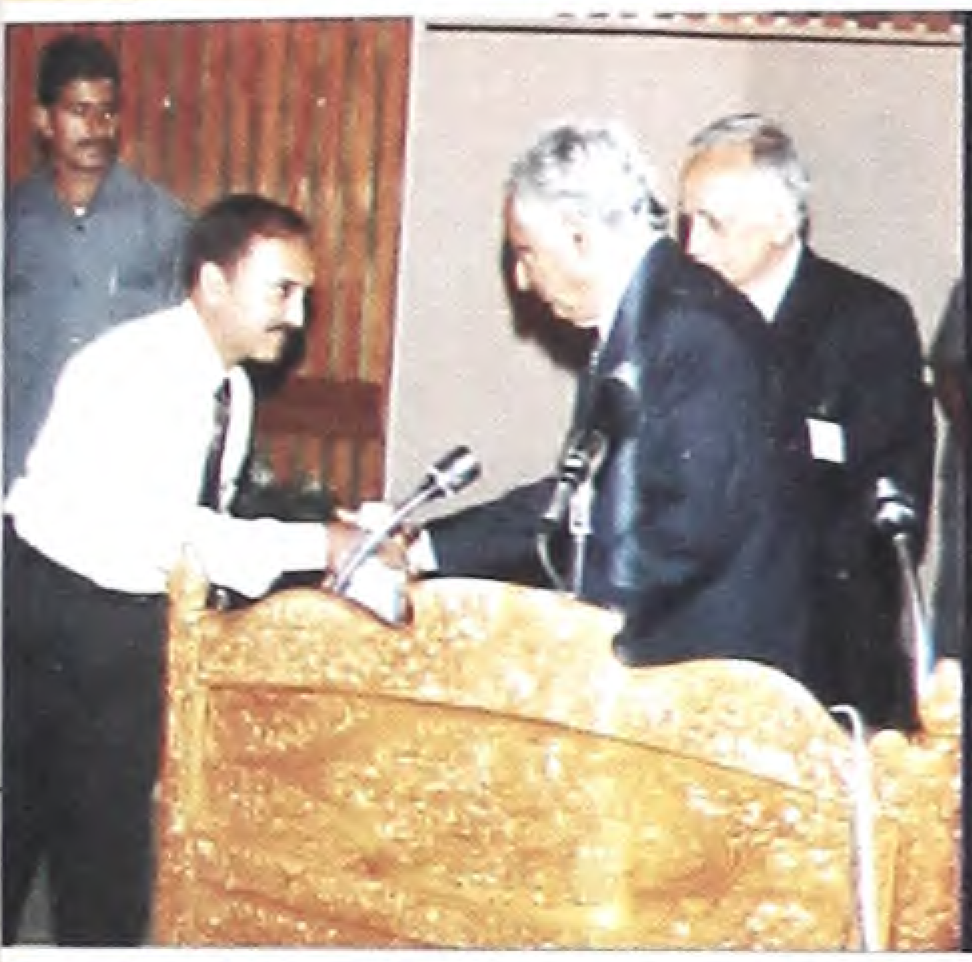
.Prof.GM Malik (Chief Editor JK-Practitioner) with the keynote Speaker **Prof. GR Mufti**

5

The Editor with Some of the attending delegates

The American College of Physicians (ACP)award for



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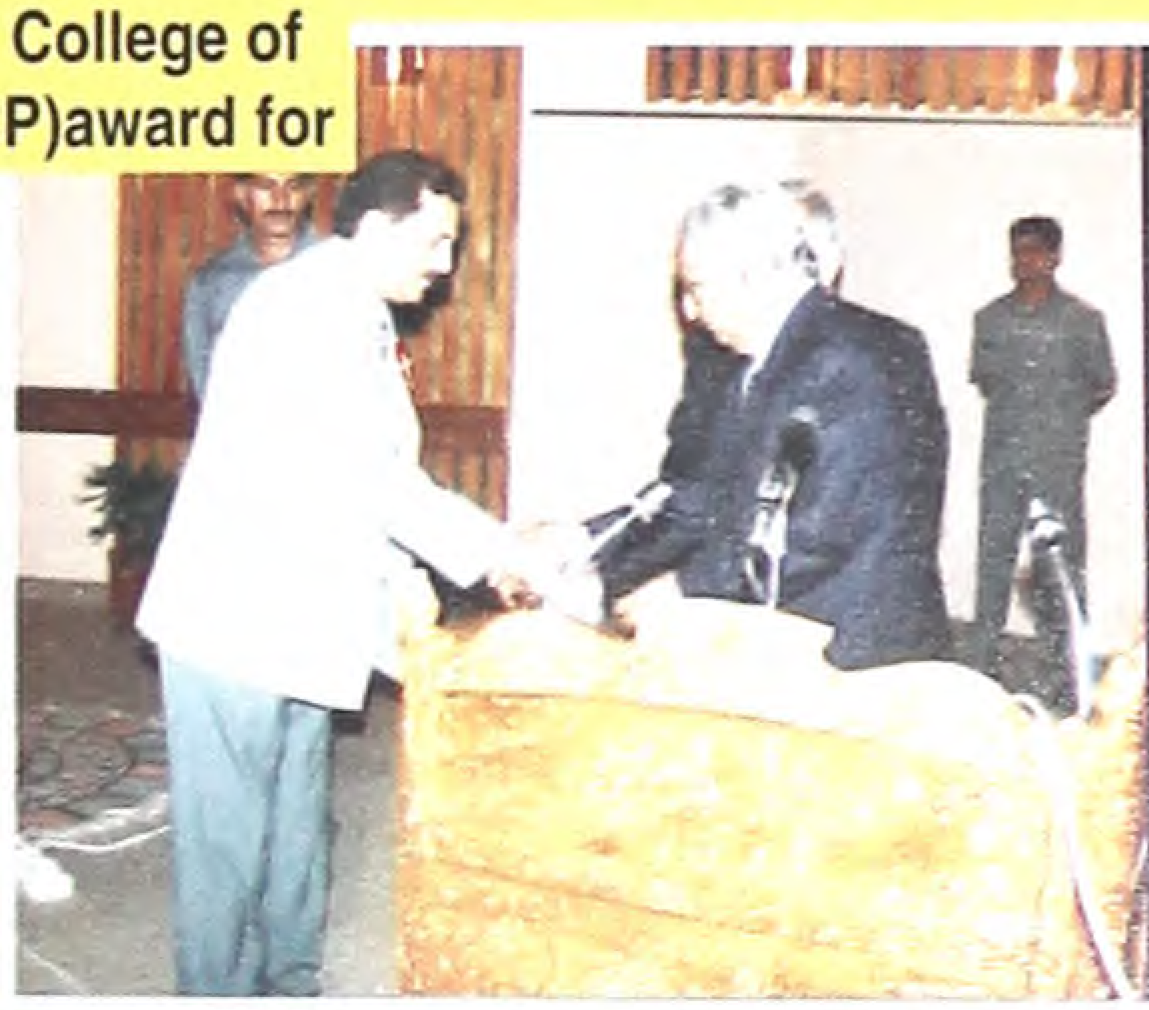

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JK-PRACTITIONER Volume 12, Number 2

AIMS AND SCOPE:-

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No: F.1(VC-KU)/05/
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I am glad to know that we are shortly going to have another issue of the well-know journal in medicine namely JK-Practitioner. I have had occasions to go through some of the research papers of general interest published in this Journal and am glad to say that I have found these to be of high quality. It is also pleasing to note that several stalwarts in the field, most of whom have been alumni of our University, have been associated with this publication in one capacity or the other. That should further enhance its quality and usefulness. As a student of Social Science, however, I cannot resist the temptation to suggest that the journal must also devote space to medical ethics and humanities because the most competent doctor may not necessarily be the best doctor if not properly oriented in this field.

I wish the Journal all the best in its noble endeavour of promoting medical education.

24/01

(Prof. Abdul Wahid)
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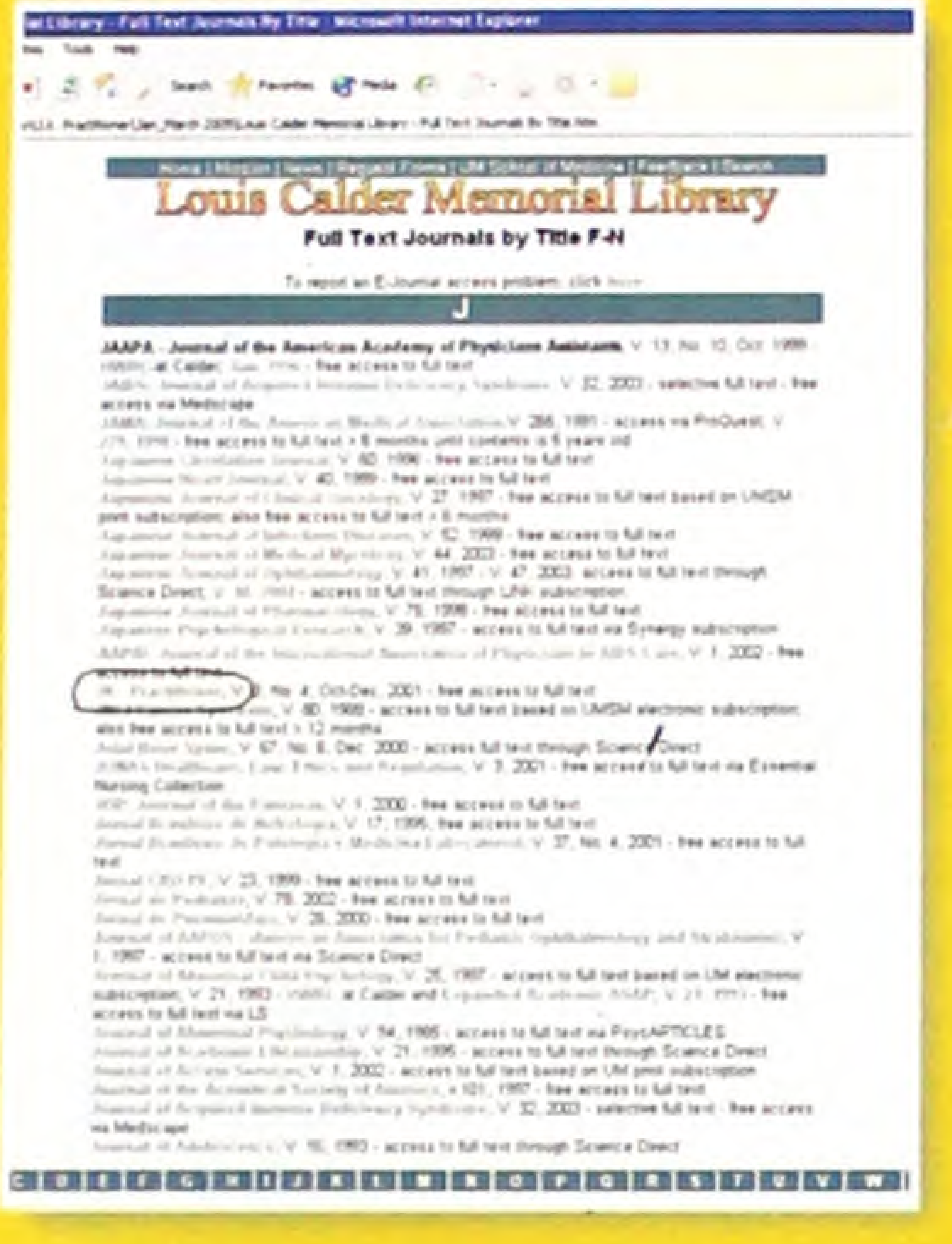
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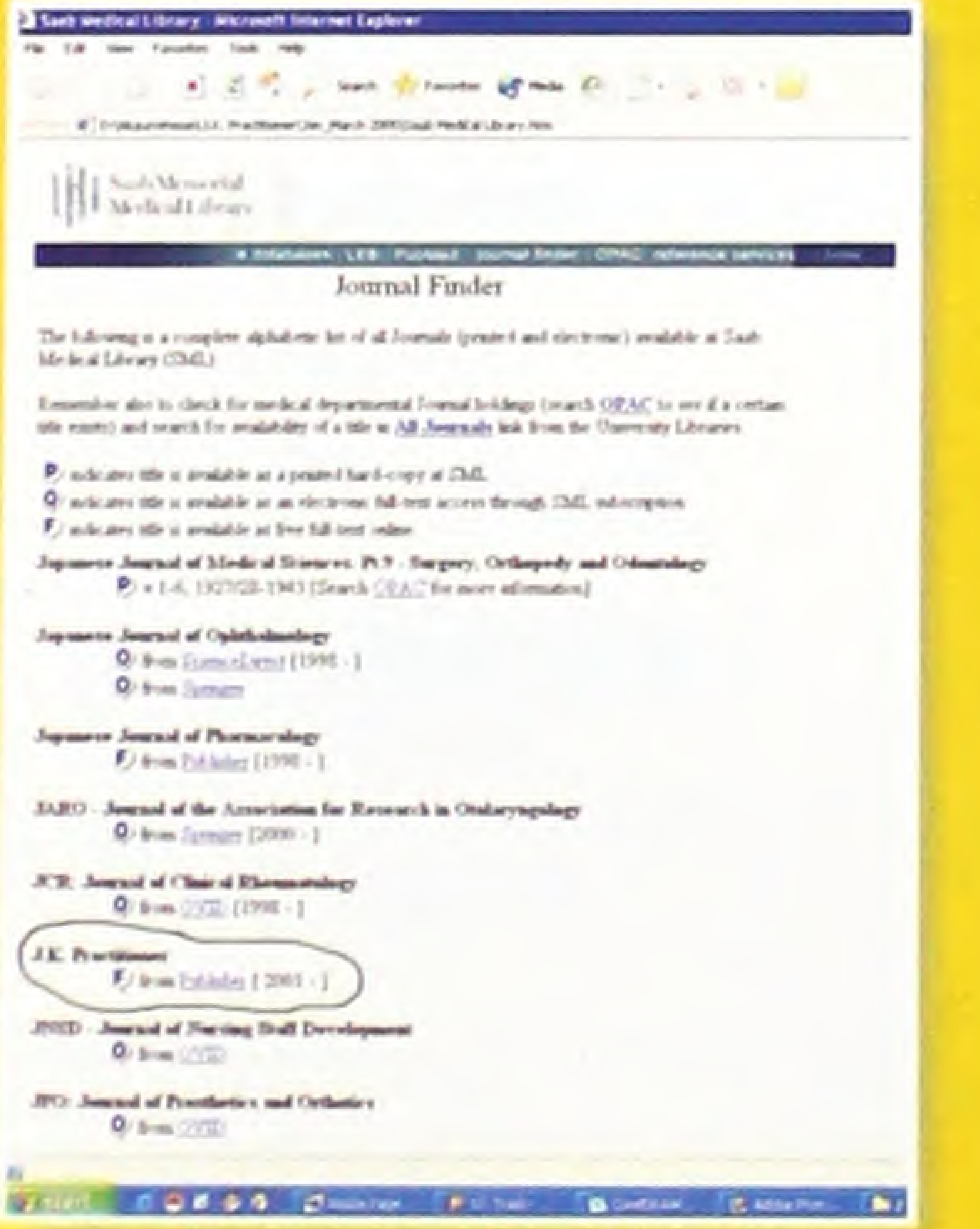

With the indexing of the journal in med IND database (National Informatics Centre, Govt.of India) there is a palpable presence of JK-Practitioner on the Internet. Incidentally the Journal has received special treatment from the Database managers. Within two months of the print copy- sometimes earlier the articles are available full text on at http:/medind.nic.in. At present only 28 journals among the hundred odd have received this distinction. The medIND has been widely available on the Net. The links to some of its journals has been provided in The Directory of Open Access (http//www.doaj.org) and other institutional sites like Galter Health Science Library (http;//www.galter.northwestern.edu) under “E-Journals” and The Holland Community Hospital under “Services Link” (http://www.hoho.org/services). Besides the above “JK-Practitioner”, will return links from, Entrez-Pubmed, JADE, TIE, CIRRE, DEFRA, ZDMedKoln, Genamics and Ingenta. The journal is also indexed and listed in highly respected international medical resource databases-EMBASE/Excerpta Medica and Ulrich's Periodicals Directory (USA).

There is a changed cover, as regular readers may have noted, the red is gone (not completely, though). A small change in the format of the articles and fonts has been made to present the journal as a more attractive package, in conformation with the international standards. I hope the researchers will like the changes. We are open to suggestion on any aspect of publishing.

I take this opportunity to once again thank our reviewers and the editorial board members particularly from outside India whose interest, contributions and suggestions has made JK-Practitioner, what it is today.

Wishing you a happy 2005.

GM Malik
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Editorial

DISASTERS - Psychological Traumatization :problems and solutions

Both immediate and long-term psychosocial consequences of intensely traumatizing events have been recognized since long. Any community hit by a disaster tries to make sense of what happened and deal with the stress of the situation. These events create a tremendous amount of distress and anxiety for those directly and indirectly affected. Man made disaster of 9 / 11 in USA clearly reflected that even in most developed countries, the state and the local health systems are largely unprepared to respond effectively to events that traumatize communities. Dozens of countries in Southern Asia have been affected by the natural disaster resulting from the recent Tsunami of December 26, 2004. Whole towns and villages have been wiped off the coast of these countries, victims count in millions, communities have lost entire economic livelihood and families have been broken apart by death, with a large number of children dead and orphaned. This obviously has severely affected the psychological wellbeing of the people living in and around the vast area of Tsunami hit Indian Ocean region. If the rate of psychological problems turns out similar to previous natural disasters studied, 50% or more of those affected could suffer from clinically significant distress or psychopathology. Similar sequelae and distress may be experienced by the victims of Waltango snowstorm a mini Tsunami in a small place like Kashmir, killing, maiming and displacing more than half of the population of the small hamlet of downtrodden population. Severity of exposure, gender, age, socioeconomic status would be significant determinants of the risk of mental morbidity. Mental health consequences of disasters can be reduced by comprehensive response planning that addresses both short-term and long-term mental health needs. Social support is one of the very ingredients to recovery. Attending to the social needs of the disaster victims could go a long way towards protecting them from long term psychological consequences.It is common for people who have experienced traumatic events or situations to have very strong emotional reactions. There is not one "standard" pattern of reaction to the extreme stress of traumatic experiences.

History written in blood and trauma is essential part of being born. We as humans adapt to terrible life events with flexibility and creativity but some become fixated on the trauma and go to lead traumatized and traumatizing existence. Despite the human capacity to survive and adapt traumatic experiences can alter people's psychological, biological and social equilibrium to such a degree that the memory of one particular event comes to taint all other experiences, spoiling appreciation of the present. Studying trauma especially in human caused disasters often confronts us with issues of man's inhumanity to man, with carelessness and callousness with abrogation of responsibility with manipulation and with failures to protect. The core issue in trauma is reality, truth of traumatic experience that forms the centre of psychopathology. What drives the psychological and biological processes in traumatic event itself or its subjective experience of the society is way to gather for aid in dealing with outside challenge. People seek close emotional relationship with others in order to help them anticipate, meet and integrate difficult experiences. Emotional attachment is essential for biological survival of humanity, in recognition of need to affiliate with each other as protection against trauma. It is widely accepted that the central issue in disaster management is the provision and restoration of social support. Different societies foster different ways of coping with traumatizing experiences. Regardless of the relative value society places on individualism, on conformity there seems to be universal tendency for people under threat to form very close attachments to other people or community. But when victim's helplessness persists as in chronic trauma or when meaning of trauma is secret, forbidden or unacceptable, the trauma is unlikely to result in mobilization of external resources in restitution or in the meeting out of justice. In such cases traumatic memories are more likely to continue to prey on the victims minds and to be expressed as anger, withdrawal and disrupted or disrupting behavior.

Religion fulfills the critical function of providing a sense of purpose in the face of terrifying realities by placing sufferings in a larger context and by affirming the commonality of suffering across generation's time and space. In systemic studies in rest of world only minority seem to escape notion that their pain, loss and betrayal are meaningless. But for our society majority seem to give meaning to trauma, to their pain and loss. The very notion that PTSD occurs as a normal response to an abnormal condition would imply that ordinarily people can have control over their fate is a relatively recent development. It is possible that besides other factors, decline of religion has given rise to

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such hope. But eastern religions in particular do not advocate that their followers will be able to control their destiny total submission to Allah, Ishwar. Thus how eastern religion beliefs can shape trauma can best be studied in our part of world and various attempts by researchers have found strong protective effects of religion on trauma under such settings.

Victims of trauma often become subjects of passionate concern in society without direct connection to their actual well being but just easily spurned, stigmatized and reflected as we have seen in our society. As trauma may have different meaning to individual and the society and thus allocation of blame and responsibility and not trauma itself may become central issue. Ironically both the victims of trauma and larger society that is asked to respond with compassion, forbearance or financial sacrifices have a stake in believing that the trauma is not really the cause of victims suffering. On one hand society becomes resentful about its illusions of safety and predictability, riffled by people who remind them of how fragile security can be; on the other hand victims suffer from impaired capacity to translate their intense emotions into communicable language.

Although traumatized individuals and societies may benefit from acknowledging and coming to terms with trauma through shared rituals and days of remembrance but there is also danger of trauma and victimization becoming over inclusive with explanations that lead to uncomfortable self examination.

The complexity of social support is further complicated by the fact that people with good social support but poor internal locus of control can still have complicated course of trauma. Failure to deal with plight of victims can be disastrous for a society. The costs of the re-enactment of trauma in society in the form of continued violence and lack of productivity are staggering. Failure to face the reality of trauma may have devastating political consequences as well. (World War I World War II)

In order to move beyond trauma, people and societies need to take adaptive actions. social institutions play an important role in defining reactions and attitude to victims. To restore the sense of control in the victims of various traumas and disasters everything possible needs to be done during the early months so as to prevent traumatic memories going underground to resurface years later in the shape of disabling psychological sequelae like post traumatic stress disorder.

Mushtaq A Margoob MD, Arshad Hussain MD, Wassem Qureshi MD

Editorial

Tele Dermatology: A newer tool in the dermatologist's armentarium.

Telemedicine is the application of the advances in telecommunication technology to health care delivery. It allows physicians to consult on patients at a distance via an interactive video format.Since dermatology is a visual speciality and consultation involves a quick recognition of a disease pattern and a straightforward clinical decision, it lends itself well to telemedicine and is known as teledermatology. The transmitted digital images are a substitute for a physical examination.[1,2] Teledermatology can provide specialized dermatological services to remote areas where there are none or few dermatologists. Teledermatology has even been used in sub-Saharan Africa with Swiss dermatologists providing the teleconsultations.[3]

A teledermatological setup consists of a digital camera and a computer workstation, which is handled by a primary care physician or health care provider in the remote clinical setting. As in a regular face-to-face consultation, a detailed history is taken, the examination performed and digital images are taken. These are then sent via the computer to the appropriate server or computer network and then to the teledermatologist who assesses the case, makes a diagnosis, suggests further investigation, formulates a treatment plan and communicates this back to the health care provider. Digital images of histopathological sections and dermatoscopic examination have also been sent to the teledermatologist to enhance diagnostic accuracy.

The teledermatology consultation can be of two types:

i) Live using real time video- conferencing between participating parties.

ii) Store and Forward systems (SAF) Digital images of patients and clinical data are stored electronically and accessed later by the teledermatologist. This system is more economical.

Various studies have found that the diagnostic accuracy and management efficacy of teledermatological consultations are comparable with conventional hospital consultations.[4,5] A patients's acceptance and satisfaction with telemedicine services has been found to be dependent on the patient's subjective health status . Patients with poor quality of life prefer a face- to- face interaction with expert clinicians.

The cost of teledermatology consultations ,especially where the services are underutilized, appeared to be higher per patient compared with the cost of conventional care. However, the teleconsultations were of greater convenience to the patient as they saved on travel time, they did not have a long wait to see the specialist, there was quicker resolution of the problem and fewer interim visits. The general practitioners involved with the teledermatology consultations also experienced job satisfaction. It is likely that if telemedicine equipment were less expensive and travelling distances greater, teledermatology would be a cost- effective alternative to conventional care.

The limitations of teledermatology are the technical drawbacks that the teledermatologist may face when making a diagnosis because of poor quality of digital image and the inability to palpate, change the lighting , perform a total skin examination or view the skin from different angles. The teledermatologist also misses the subtle nuances in history, patient's body language and demeanour that are an important part of a face-to-face consultation that can affect the diagnosis and further management. When questioned specifically, many patients reveal that they would prefer a face-to-face consultation.[6]

Technical breakthroughs have brought about a great deal of improvement and convenience in patient care but at the cost of depersonalization of the practice of medicine. It is too early to predict whether dermatology patients need just a simple answer to their questions and problems or they need a little more of the human touch.

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Hereditary cancer syndromes

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INTRODUCTION

Cancer is a genetic disease, arising from an accumulation of mutations that promote clonal selection of cells with increasingly aggressive behaviour. The vast majority of mutations in cancer are somatic and are found only in an individual's cancer cells. However, about 1% of all cancers arise in individuals with an unmistakable hereditary cancer syndrome. These individuals carry a particular germline mutation in every cell of their body. Although rare, the inherited cancer syndrome are of vast biological importance. Studies of the specific mutations responsible for these syndromes and the cellular signalling pathways disrupted by the mutant patients have begin to provide unprecedented insights into the molecular origins and pathogenesis of inherited and sporadic forms of cancer.

The genetic analysis of the specific genes amounted with hereditary cancer risk has enabled direct diagnosis of hereditary cancer syndromes. The most common cancers for which such diagnostic tests are available include tumors of the colon, breast, ovary, endometrium and endocrine glands (sp. thyroid). Identification of hereditary cancer susceptibility syndrome, identifies individual who are at increased risk of cancer and also has medical management implication for an individual already diagnosed with cancer. Significantly, testing may also identify individuals in high risk families who did not themselves inherit cancer susceptibility, allowing them to avoid unnecessary medical intervention.

Biological basis of hereditary cancer syndromes

Cancer results from mutation that occur in cortical genes within a single cell, allowing it to escape normal controls of growth and proliferate until it becomes a clinically evident tumor[1]. Most of the genes responsible for development of cancer fall into two categories: Oncogenes and tumor suppressor genes[2]. When a mutated copy of a gene confers a growth advantage to a cell even in the presence of a normal copy of the gene, it is considered to be an oncogene and is like afoot pressing on the gas pedal of a car, one foot has a stimulatory effect. Conversely when carcinogenesis results from loss of the normal function of a gene it is considered a tumor suppressor gene. As there are two copies of each chromosome and as such in each gene, a mutation in a single tumor suppressor gene is not by itself destructive to the cell. These tumor suppressor genes are like two feet poised over a cells' brake pedals. Thus each tumor suppressor gene has a backup, if one copy is inactivated by a mutation. If both copies are inactivated, the gene loses its function and malignant transformation proceeds.

Most genetic mutations that lead to cancer are acquired in critical growth controlling genes through exposure to carcinogenic agents or from mistakes made by cells during the process of cell division, but in minority of individuals such mutations are inherited[3]. There are other genetic factors that surely influence the risk of cancer in the general population, but hereditary cancer syndromes are the result of specific inherited genetic mutations that do not merely contribute to a persons lifetime risk of cancer, but define it. It is such that the genes involved in such syndromes increase the cancer risk to such an extent that all the other factors are overridden. The risk of inheritance of hereditary cancer syndrome in the progeny of a family affected, reveals the cancer risk to be inherited as an autosomal dominant disorder, in which approximately half the offspring of each mutation carrier develops a specific carrier associated with the syndrome. A germline mutation is one that is present in a sperm or ovum and

Table 1: Hereditary cancer syndromes

Syndrome	Clinical manifestations	Gene	Chromosomal	Proposed function of gene product
Hereditary nonpolyposis colorectal cancer (HNPCC)	Colorectal and endometrial ca, also ca. of upper gastro-intestinal tract, biliary and renal pelvis	MLH1, MSH2 PMS1, PM52, MSH6	2P16,3P21, 2q32,7p22	DNA mismatch repair
Familial adenomatous polyposis (FAP)	Proliferation of colonic polyps and colorectal carcinoma; also upper gastrointestinal tract carcinoma and congenital hypertrophy of the retinal pigment epithelium, desmoid tumors and fascial bone osteomes (Gardner syndrome) and thyroid cancer and brain tumours (Turcot syndrome)	AFP	Sq21	Regulation of b-catenin, microtubule binding
Hereditary breast and ovarian cancer	Breast and ovarian carcinoma also, male breast, prostate pancreatic carcinoma and possibly double melanoma	BRCA1 BRCA2	17q21 13q12	Interacts with Rad 51 protein; repair of double strand breaks
Multiple endocrine neoplasia type 2 (MEN2)	Medullary thyroid carcinoma and pheochromocytoma; hyperparathyroidism (MEN2A) and mucosal neuromas, ganglioneuromas and characteristic facies (MEN2B)	RET	10q11.2	Transmembrane receptor tyrosine kinase for GDNF

thus becomes introduced into the genetic makeup of an individual concerned from that cell. The germline mutation is more likely to be introduced during spermatogenesis than in oogenesis, as there are vast number of actively dividing cells in the testis. Hereditary cancer syndromes (Table 1) account for a minority of common adult cancers. It is seen that almost 7% of breast cancers and 10% of ovarian cancers arise from inherited mutation in specific tumor suppressor genes namely BRCA-l and BRCA-2[4]. Approximately 5% of colorectal cancer is attributable to mutations in the 5 tumor suppressor genes that are responsible for HNPCC and 1% or less of colorectal cancer is due to mutations in the AFP gene responsible for FAP[5]. Mutations in the RET gene are responsible for MEN2 hereditary cancer syndrome and account for 20% to 25% of all medullary carcinomas of the thyroid[6]. This gene which is an oncogene is responsible for an autosomal dominant inherited cancer syndrome. The risk of cancer associated with hereditary cancer syndromes far exceeds that conferred by any known environmental factor[7]. The mutation in BRCA-l and BRCA-2 are associated with a 50% to 87% risk of breast cancer by age 70[8,9]. The risk of colorectal cancer associated with HNPCC is almost 80%, with some studies indicating a higher risk in men than in women[5]. These hereditary cancer syndromes are associated with susceptibility to cancer of other organs as well. For example in breast cancer, risk of getting ovarian cancer, in hereditary nonpolyposis colorectal cancer, endometrial cancer and in multiple endocrine neoplastic type[2], the pheochromocytoma. Further there is increased risk of getting a second malignancy. Women with breast cancer who have mutation in BRCA-l or BRCA-2 are 10 times more likely to develop ovarian cancer[10] and also have 12% -20% risk of a second breast cancer within 5 years of diagnosis of the first[11,12]. Those with HNPCC have 40% risk of metachronous colon tumor within 10 years after segmental resection of the colon[13].

Clinical and laboratory identification of hereditary cancer

1. ***Strong family history of cancer***

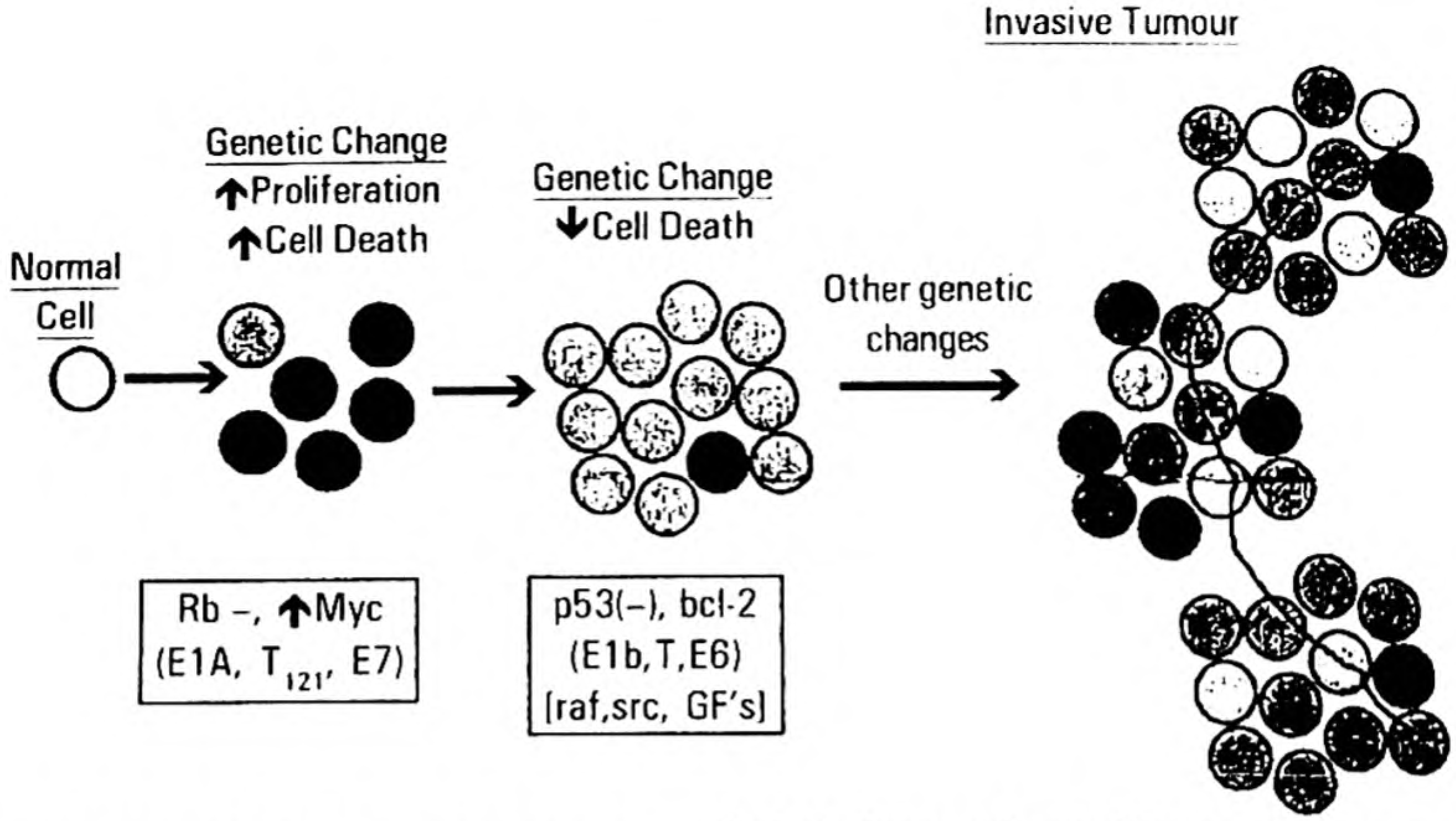
If this is present, it surely makes a possibility of hereditary cancer risk, but in some cases it may be absent.

2. ***Autosomal dominant nature***

Most of the hereditary cancers have autosomal dominant nature, but it may be obscured by small family size, unknown or poorly documented medical histories, and in some cases incomplete penetrance (that is individuals who carry a mutation but who have not developed cancer at the time the family history was taken). For identification of these with hereditary risk, specific criteria are often developed to suggest further evaluation of the possibility of a specific syndrome.

3. ***Age and multiple primary cells***

Early age of onset of cancer and multiple primary cancers may be pathogonomic of hereditary cancer. As 33% to 50% of women with mutations in BRCA-l and BRCA-2 develop breast cancer before 50 yrs of age[14-18] and colorectal



cancers associated with HNPCC is seen usually before the age of 45 years.

4. ***Pathological features***

There may be typical features which may suggest the possibility of hereditary cancer. Colorectal carcinoma associated with HNPCC are typically right sided, poorly differentiated and with prominent peritumoral lymphocyte infiltration with crohn's disease like reaction and tumor infiltrating lymphocytes[5].

Breast cancer with mutation in BRCA-1 may have features of medullary carcinoma (high nuclear grade and pushing margins), and are less likely to express estrogen receptor than sporadic breast cancer[11]. Conversely tumors associated with BRCA-2 are more likely to express estrogen receptors[12]. It is worth mention that if in colorectal cancer microsatellite instability is demonstrated, the possibility of HNPCC is greatly suspected. A rare cancer should be evaluated for hereditary cancer risk. In medullary carcinoma of thyroid evaluation for MEN2 should be sought and genetic evaluation should be done in all patients diagnosed to have retinoblastoma[17].

5. ***Genetic testing***

Whenever the possibility of a hereditary cancer syndrome arises, genetic testing is the only means to distinguish individuals who are at increased risk from those who are not. The American Society of Clinical Oncology has recommended that 3 conditions should be met before an individual is tested for hereditary cancer predisposition: there should be a reasonably high likelihood of a positive test (such as greater than 10%), the physician ordering the test should be able to interpret the result, and the result should be intended to influence the medical management decisions. The analysis of chemical code of a gene, called gene sequencing have brought testing for specific hereditary cancer syndromes from the research to the clinical laboratory.

Medical management of hereditary cancer

Medical interventions for the increased risk of cancer include increased surveillance, prophylactic surgery and medications to reduce cancer risk.

1. ***Surveillance***

The Cancer genetics studies consortium of the National Human Genome Research Institute has recommended that women with mutations in BRCA-1 and BRCA-2 must undergo annual semiannual clinical breast examination as well as annual mammography which should commence before the age of 35 years[17]. The same group has further recommended colonoscopic surveillance commencing before age of 25 years for individual with HNPCC[18], which has proved to reduce the mortality of colorectal cancer in that syndrome.

Unfortunately surveillance is not effective in some hereditary cancer like the use of serum calcitonin levels in members of families with MEN2 lacks both sensitivity and specificity[19]. So is also the case with ovarian Cancer[20].

2. ***Prophylactic surgery***

This is an appropriate strategy for some individuals with hereditary risk of cancer. Although prophylactic mastectomy is effective in reducing the risk of breast cancers[21], its cosmetic and sexual implications, and the availability of effective screening for breast cancer make it an infrequently chosen intervention. Though prophylactic mastectomy may be mandatory in women whose mammographic assessment is compromised by extensive fibrocystic changes.

The resultless ovarian cancer surveillance led a National Institute of Health Consensus panel to the recommend prophylactic oophorectomy in women at 35 years of age or after child bearing is completed. Unfortunately peritoneal carcinomatosis has been documented in 2% to 11% in patients who have undergone prophylactic oophorectomy for hereditary risk of ovarian cancer[22]. Though most of such observations were made before direct genetic testing for BRCA-1 and BRAC-2 were available. Consequently few reports exist regarding the risk of peritoneal carcinoma following prophylactic oophorectomy for carriers of mutations in BRCA-1 and

BRCA-2. It is worth mentioning that prophylactic oophorectomy has recently been shown to reduce the risk of breast cancer by nearly 50% in women with BRCA mutations[23].

Prophylactic colectomy in HNPCC and FAP is an option, but efficacy of colonoscopy and also some individuals with HNPCC will not develop colorectal cancer, the cancer genetic study consortium has not made any recommendation for or against such procedures for that syndrome. Although in FAP patients, colectomy is advised when polyps are detected by endoscopy, though it is debatable whether colectomy in such situations is in real sense as a prophylactic measure, given the virtual certainty that the polyps will develop into malignancy[24]. Prophylactic thyroidectomy in childhood is the mainstay for members with RET mutations. Prophylactic surgery of at-risk tissue from an individual with established hereditary risk puts additional responsibility on the pathologist examining such samples. It is very important to perform thorough sampling and examination of the specimen, as their is increased risk of an occult malignancy in individual with hereditary cancer risk.

3. ***Chemoprevention***

Those drugs which actually reduce the risk of cancer. It is possible to reduce the breast cancer risk by selective ostrogen receptor modulators, such as tamoxifen[25]. There are trials under way of drugs for reducing the development of colorectal neoplasia in members with hereditary risk ie., folic acid, nonsteroidal anti-inflammatory drugs and cyclooxygenase-2 inhibitors. Further, in patients who have already been diagnosed to have inherited cancer syndrome, the management may differ as in patients with HNPCC who develop colorectal cancer may undergo subtotal colectomy than segmental colectomy, as there is risk of a metachronous primary. Same is true of hereditary breast cancer. In them bilateral mastectomy with reconstruction as well as prophylactic oophorectomy may be undertaken.

FUTURE

Finally characterization of the risks of individual family members requires genetic testing to enable those individuals who are at increased risk to be distinguished from those who are not. Owing to the advances in information management, biotechnology cellular biology and clinical research, genetic information can be used to create effective clinical and diagnostic tools. Future research into the function of the proteins encoded by these genes will allow for the continued development of the rational therapies directed specifically to individuals with hereditary cancer syndromes.

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Spontaneous Cerebellar Haematomas

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Cerebellar haemorrhage comprises 5 to 13% of all parenchymal intracranial haemorrhages. It is a serious condition with a high mortality. The diagnosis must be made early because most patients die within the first 48 hours.[1]

Aetiology:

Hypertension is the underlying cause in the majority[2] (60-80%) In a series of 10 adult patients with cerebellar haemorrhage, hypertension was the most common etiological factor accounting for 70% of the cases[3]. Other series have also reported, hypertension to be the commonest etiological factor[4,5]. Arteriovenous malformations, blood dyscrasias, trauma, neoplasm's, anticoagulants and aneurysms account for the rest [6]. Certain rare aetiological factors for cerebellar hemorrhage (i.e.) amyloid angiopathy have also been reported [7]. Cerebellar haemorrhage has been reported in more than 20 cases following supratentorial craniotomy and two cases after cervical spine surgery. Obstruction of flow in the internal jugular vein at the site where the vein descends across the transverse process of the Atlas is likely cause of the venous hypertension resulting in cerebellar haemorrhage[8].

Pathology

Cerebellar haemorrhages occur most frequently in the area of the dentate nucleus. From this site they can spread to involve most of the cerebellar hemisphere and occasionally cross the midline to involve the other side. Not infrequently, they extend into the cerebellar peduncles, and they commonly rupture into the fourth ventricle. Only rarely do they directly involve the brain stem, but the brainstem is frequently deformed by pressure from the clot[6].

Clinical features and pathophysiology

McKissock[9] in 1960, emphasized some of the important features of cerebellar haemorrhage, but according to him the clinical picture was too protean and neurological signs were not specific enough to establish a clinical diagnosis without laboratory and radiologic investigations.

Fischer[10] insisted that the diagnosis of cerebellar hemorrhage should be made strictly on the basis of clinical criteria without resisting to time consuming radiological investigations.

The clinical features have been divided into early, intermediate and late stages[6].

Early stage: The symptoms produced by cerebellar haemorrhage are related to destruction and compression of the cerebellum itself or to the subarachnoid haemorrhage resulting from rupture of the haematoma into the subarchnoid space. Dizziness, nausea, vomiting, headache, imbalance and difficulty in walking are the most common presenting symptoms.

Hoop[11], in a review on 22 patients with spontaneous cerebellar haemorrhage reported headache, vomiting and vertigo as the most frequent symptoms. Headache and vomiting occurred in three- quarters of the patients and inability to stand in one half. Other studies have also reported headache and vomiting as the commonest symptoms, but these are believed to be nonspecific and of little diagnostic value[12,13]. Although the onset is abrupt in most patients with cerebellar haemorrhage, it may be more gradual occuring over a period of several hours or even days.

Little[3] in his series of 10 patients with cerebellar haemorrhage reported two patients with a subacute onset. Some of the patients with a subacute onset have premonitory signs or transient ischaemic attacks (TIA) before the onset of their stroke[11].

Examination at an early stage may reveal patients to be alert, irritable and sometimes confused. Of 22 patients in Hoop's[11] series six were alert (GCS score 14) eight were drowsy (12-13), two were stuprous (8-11) and six comatose (<7). In his series in cooperative patients cerebellar signs were frequent. Limb ataxia was seen in 10 patients (70%) and dysarthria in 5(35%). In all cases limb ataxia correlated with the side of the haemorrhage. Nystagmus was present in 5 patients (35%). Nystagmus is usually horizontal and rapid in the direction of the gaze and together with dizziness and occasional vertigo and nausea suggests involvement of the flocculonodular complex and the vestibular connections of the cerebellum. Appendicular ataxia reflects involvement of the more lateral portions of the cerebellum.

Intermediate stage: As the mass effect increases, hydorcephalus results from the compression of the 4th ventricle or rupture of haemorrhage into the ventricle. At this stage the patient may become confused, agitated or drowsy. Early compression of the dorsal portion of the brainstem results in ipsilateral sixth nerve paresis. In early stages paresis of voluntary lateral gaze in one eye can be overcome with caloric stimulation, a condition named by Fischer[10] as pseudo-VI nerve paresis. Later, ipsilateral gaze paresis develops from compression of the horizontal gaze centres. The eyes may be forcibly deviated to the opposite side, this paresis cannot be overcome by caloric stiumulation. At this stage some degree of ipsilateral' peripheral type' facial paresis is almost always present because of the compression of the facial colliculus. Babinski signs, first ipsilaterally and then bilaterally are present at this stage. Sometimes a Horner's syndrome is seen because of compression of the sympathetic pathways running from the hypothalamus through the dorsal brainstem. A very mild hemiparesis may be detected at this stage, but is never severe until quite late, The pupils in the intermediate stage are usually small, again from the interference with the descending sympathetic pathways.

Ott[13] and his coworkers suggested that a triad of signs- appendicular ataxia, ipsilateral gaze palasy and peripheral facial palsy- should strongly suggest the diagnosis of cerebellar haemorrhage. At least two of these signs were present in 73% of their 26 patients.

Late stage: If the process continues unchecked, massive brainstem compression or extension of the haemorrhage into the brainstem can occur, Patient quickly pass from a stuprous condition into a comatose state, begin to posture and eventually decerebrate. Pinpoint pupils are usually found at this stage, but they will react to bright light because although the descending sympathetic control from the hypothalamus to the cervical cord is lost, the parasympathetic control of the pupils into the midbrain is preserved until late. Ataxic respiration appears and is often followed rapidly by cardiovascular instability and apnea from medullary involvement[6].

Investigations

The advent of CT scan has made it unnecessary to perform a lumbar puncture which according to Heros[6], adds little information, has few therapeutic implications and caries some risk to the patient.

Since the introduction of CT, the size and the localization of intracerebellar haematomas can be rapidly detected. CT scan shows size, location, mass effect and accompanying secondary conditions like hydrocephalus, oedema and intraventricular haemorrhage.

Mitchel and Angrist[14] recognized that the total volume of the normal human cerebellum is 140cm^3. With the help of CT scan the size of the haematomas can be volumetrically calculated.

In 1976 Steiner et al[15]., observed a correlation between the prognosis and the size of the haematomas as calculated by CT. Little[3] in his study of patients with cerebellar haemorrhage divided the patients into two groups Group I as the patients with a large hematomas (> 3 cms) on CT with substantial ventricular dilatation and Group II with a small hematomas (< 3 cms) without ventricular dilatation[1]. CT scan was helpful to differentiate cerebellar haemorrhage from primary brainstem and intraventricular haemorrhage and proved helpful in defining the appropriate therapy as majority of patients in Group I underwent emergency suboccipital craniectomy and evacuation of haematomas.

Zieger[16] in his study on 23 patients with cerebellar haemorrhage calculated the volume of haematomas by computer assisted calculation of the bleeding area in square centimeters trigonometrically. This was multiplied with height of each tomographic slice. The total volume of the haematoma was then calculated additionally as the sum of each slice volume for each patient. The volumetrically calculated size of the haematomas ranged from 8.0 to 87.5 cm^3. The haematoma size was directly related to the degree of brainstem and basal cistern compression and to the level of the occlusive hydrocephalus. Large haematomas with a volume between 70 to 87.5 cm^3.were found in very acute group. In the acute group the haematoma size was 27 to 66 cm^3. The haematoma size of subacute group ranged from 22.5 to 30.5 cm^3. Small haematomas only occurred in chronic group with a size between 8 and 16 cm^3. The treatment plan and prognosis of the patients was based on this calculation. Patients with a haematoma size of over 70.0 cm^3 did not respond to any kind of medical treatment, they mostly died within 48 hours of the onset of bleeding. Patients with haematomas between 27 and 66 cm^3 responded well to surgical treatment if the haematoma was detected rapidly by CT and evacuation of the haematoma was done promptly. Patients with a haematoma size between 22.5 and 30.5 cm^3 could be successfully treated by surgical intervention. Conservative treatment proved more successful than operative treatment for patients with a haematoma size between 8 and 16 cm^3.

Angiography

If CT can shows a cerebellar haemorrhage, angiography is usually uncessary but is useful in a patient with a cerebellar haemorrhage in whom an arteriovenous malformation is suspected[6].

Course and prognosis

Before CT scan became widely available, estimates for the mortality rate of untreated, symptomatic cerebellar haemorrhage ranged from 65 to 80%. Many cerebellar haemorrhage detected by CT scanning result in mild symptomatology and have often a benign natural history. These are usually less than 3 cms on CT. Even in the CT scan era the overall mortality for cerebellar haemorrhage is about 40% and once the cerebellar haemorrhage leads to stupor and signs of brainstem compression the fatality rate reaches 100% without treatment[17].

Salazaar[18] in a study of outcome on 15 patients of cerebellar haemorrhage ascribed increased mortality to haematomas larger than 3 cm (73%) , hydrocephalus (45%) and intraventricular haemorrhage (40%).

Weisberg[19] in a study on 14 patients with cerebellar haemorrhage defined an entity called ' tight posterior fossa' on CT which was defined as effacement of the basal cisterns of posterior fossa and ventricular enlargement consistent with obstructive hydrocephalus. In his study all tight posterior fossa patients showed a rapid neurologic deterioration.

Donauer[17] in a study on 33 patients of cerebellar haemorrhage ascribed increased mortality to obliteration of perimesencephalic cisterns and bad-clinical neurological status apart from the risk factors like arterial hypertension (48%) cardiac risk factors (12%) diabetes mellitus (9%) alcoholism and liver cirrhosis 9%. Patients with bleeding into the vermis also had a bad prognosis.

Besides evaluating the above mentioned prognostic indicators Kiyoyuki[20] studied 31 patients with spontaneous cerebellar haemorrhage who had a low GCS score at admission and underwent MRI. Obliteration of 4th ventricle and the perimesencephalic cistern and the presence of hydrocephalus in initial tomographic scans and the presence of areas of high signal intensity in the brainstem in T2 weighted images were studied. Brainstem damage and high signal intensity on MRI in the brainstem was a significant prognostic factor for determining outcomes for patients with spontaneous cerebellar haemorrhage who were in poor grade.

Management

In a study on 10 patients with cerebellar haemorrhage Little divided patients of cerebellar haematoma into two groups Group I (6 patients who had a haematoma 3 cm or greater with moderate to severe dilatation of third and lateral ventricles with intraventricular extension in 3 patients. Four patients in Group 2 had smaller haematomas measuring less than 3 cms with no evidence of CSF obstruction. Five patients in Group I underwent emergency suboccipital craniectomy with evacuation of haematoma. one patient had clinical findings of severe brainstem injury and was considered inoperable. There were 2 deaths in Groups I. In Group II. patients were treated conservatively with bed rest. steroids and antihypertensives, four patients made uneventful recoveries with little residual deficit. Follow-up studies revealed resolution of the clot over a 4 week period. On repeated scans the haematoma gradually decreased in size.

Lui[21] in a study in 26 patients of spontaneous cerebellar haemorrhage treated by surgery recorded the indications of surgery as:-

a. Disturbance of consciousness.
b. Signs of brainstem compression
c. Haematoma with a transverse diameter greater than 3 cm.

22 patients underwent suboccipital craniectomy and evacuation of haematomas with or without ventriculostomy with mortality rate of 27%. Four patients underwent ventriculostomy only, with a mortality of 75%. The causes of deaths were (a) brainstem-failure (6 patients) (b) airway obstruction (1 patient). (C) Chest infection (1 patient) (d) Chronic renal failure (1 patient). He concluded that suboccipital craniectomy to evacuate the haematoma was the most effective procedure when treatment was indicated. Amongst the survivors 31% could return to work 38% were moderately disabled but 31% were dependent.

Auer[22] in his study on 16 patients with cerebellar haemorrhage has recommended early surgical evacuation of haematoma. Nine out of 10 patients in his study survived after early surgical evacuation of haematoma and 4 of them recovered completely. Evacuation of the haemorrhage was performed either via a posterior fossa craniectomy or by endoscoic burr hole evacuation. Four of his patients were treated conservatively, 2 patients died and one survived with severe deficits. According to him posterior fossa craniectomy is a life saving intervention when the clinical cause is tending towards coma and decerebration, medical treatment in such a situation is almost invariably followed by a lethal outcome whereas the functional survival is frequent after surgical treatment.

Several new lines of evacuation of haematomas have been proposed. Nizuma[23] reported CT guided stereotactic aspiration of nine cerebellar haematomas. With this technique general aneasthesia is not needed and operative invasion is minimal and is suitable for elderly patients. This may also be helpful for patients whose symptoms fail to improve after conservative surgery.

Mohadjer[2] in long term study on 14 patients used CT guided stereotactic puncture and partial evacuation of haematoma, after fibrinolysis with unrokinase. The residual haematoma was completely evacuated via a catheter introduced into the cavity of the haematoma, only one of the 14 patients died.

Mezzadri[1], in retrospective analysis of 50 patients with spontaneous cerebellar haemorrhage reported 25 patients who underwent surgery, 11 of these patients (44%) died. Patients treated conservatively had a mortality rate of 72% (18 cases). He concluded that detection of patients at risk of deteriorating neurologically must be made promptly and awaiting a decrease in alertness to indicate surgical treatment is dangerous. Operated patients in his series with haematoma size more than 3 cm had a mortality rate of 83% and non operated ones a mortality of 100% Criteria for surgery in his study were: 1) Clot diameter of 3 cms or more). 2) a volume larger than 27 cm3, 3) presence of obstructive hydrocephalus 4) obliteration of posterior fossa basal cisterns or the quadrigeminal cistern.

Loons[24], in a review on 49 conservative patients with spontaneous cerebellar haematoma divided the patients according to the degree of obliteration of quadrigeminal cistern on CT grade I (Normal cistern) Group II (Compressed cisterns) Grade III (Absent cistern). 17 patients were treated conservatively, 32 patients underwent operative procedures in the form of ventricular drainage or suboccipital craniectomy and haematoma evacuation. 5 patients treated initially with ventricular drainage for hydrocephalus later underwent haematoma evacuation because of lack of improvement. Significant correlation between the grade of cisternal obliteration and outcome was noted. Patients with Grade I quadrigeminal cistern had a favourable outcome. Patients with Grade II cisterns had a good or moderate outcome. Hydrocephalus in grade II patients carried a grave prognosis and an early evacuation of haematoma should be done and in accompanying hydrocephalus haematoma evacuation should accompany ventricular drainage. Patients with totally obliterated quadrigeminal cistern (Grade III) had a poor outcome irrespective of the nature of treatment , half of them died and half remained in vegetative state. It is not clear if early' haematoma evacuation would benefit these patients, it was possible that some would survive but remain in vegetative state.

Donauer[17] in a prospective study for the management of cerebellar haemorrhage in 33 patients devised a management protocol which included:

I. Cases with small haemorrhage in good clinical condition without hydrocephalus and occlusion of basal cisterns Intensive supervision, operative intervention only if they go into one of the following groups.

II. Cases with hydrocephalus without occlusion of basal cisterns or tonsillar herniation require monitored ventricular drainage.

IIIa. Cases with large haematoma, occluded basal cisterns and or tonsillar herniation, but without general risk factors:
Step I: Pressure monitored ventricular drainage.
Step II: No improvement surgical evacuation.

IIIb: Same intracranial situation but with general risk factors pressure monitored ventricular drainage only.

III. Cases with aneurysm or AVM who were initially treated conservatively secondary operation of vascular malformation after stabilization of general condition. Overall mortality was 33%. The worst prognosis was related to patients with an additional intraventricular haemorrhage, additional ventricular bleed, occluded perimesencephalic cisterns and severe systemic disease were related to unfavourable outcome.

Mathew[25] in a retrospective study on 48 patients with cerebellar haematoma, reported operative intervention in 75% of patients. Early surgical management in cerebellar haemorrhage associated with early presentation and CT signs of brainstem compression and acute hydrocephalus led to a good outcome in most patients of patients with cerebellar haematoma initially treated by external drainage. Over half subsequently required crainectomy and evacuation of the clot but in some cases this failed to reverse the deterioration.

Kobayashi[26], analysed 101 consecutive patients with hypertensive cerebellar haemorrhage to determine the criteria for surgery. New criteria were based on the patients's Glasgow coma score at admission and the maximum diameter of the haematoma as seen on CT scan. The criteria are : 1) patients with Glasgow coma scale scores of 14 or 15 and with a haematoma of less than 40mm in maximum diameter are treated conservatively, 2) for the patients with Glasgow coma scale scores of 13 or less at admission or with a haematoma measuring 40 mm or more, haematoma evacuation with decompressive suboccipital craniectomy 3) for the patient whose brainstem reflexes are entirely absent with flaccid quadriplegia or whose general condition is poor, intensive therapy is not indicated. The validity of these criteria was tested and confirmed in 49 recent cases.

Kirollos[27], in study on 56 patients developed a new treatment protocol. The appearance of 4th ventricle was divided into 3 grades and the ventricle size was correlated with size and volume of haematoma and presenting GCS. Haematoma was surgically evacuated for all patients with Grade III compression of 4th ventricle (severe compression) and Grade II compression (moderate) when GCS deteriorated in absence of untreated hydrocephalus. Patients with Grade I (normal) were treated with ventricular drainage only in presence of hydrocephalus and clinical deterioration. He concluded that conscious patients with severe 4th ventricle compression should undergo urgent clot evacuation before deterioration. Surgical evacuation of the clot may not be required for large haematomas if the 4th ventricle is not totally obliterated at the level of the clot.

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Review

Varicella Pneumonia in Adults

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INTRODUCTION:

Chickenpox (varicella), caused by the DNA virus varicella zoster virus, is a highly infectious and common disease in childhood. Transmission is through contact with aerosolized droplets from nasopharyngeal secretions of an infected individual or by direct contact with vesicle fluid from skin lesions. The disease has an incubation period of 14 to 16 days and a high attack rate of about 90% within two weeks among household contacts. Consequently most adults in developed countries have experienced infection during childhood and retain life-long immunity. Thus in the United States of America, varicella in adults account for only 1.6% of cases[1]. There is an estimated 7% of adults in the industrialized countries who are susceptible to varicella[2] and moreover, there is evidence of an increase in the incidence of chicken pox in adults in Europe and North America[2,3,4,5]. A high proportion of adults in tropical and semi tropical areas are also believed to remain susceptible to primary infection[6]. Although a trivial illness in childhood, it carries a 25-fold greater risk of complications in adults compared to children[7]. These include respiratory (pneumonia), neurologic (encephalitis, transverse myelitis, Guillain Barre Syndrome), renal (glomerulonephritis), gastrointestinal (bleeding, hepatitis), Reye's syndrome, arthritis, cellulitis and hematological (coaglupathy, thrombocytopenia) complications. Varicella pneumonia (VP), first described in 1942[8] is the most common complication and the leading cause of death in adults with chickenpox. Mortality is reported to range from 10 30 % [7,8] and can be as high as 50% in patients admitted to intensive care units[9]. The introduction of anti-viral agents and the use of steroids in VP have had an impact on the outcome of this complication. It is therefore important to be able to identify patients at risk of, or have VP in order to institute early and appropriate therapy. This article will review the incidence, clinical presentation, treatment, mortality, morbidity and prevention of VP in adults.

INCIDENCE

Varicella pneumonia is reported to occur in between 1 to 2.3 in every 400 cases of adults presenting with chickenpox [4,10]. There is evidence that the incidence of varicella zorster infection in adults is increasing over the last two decades with proportionately more deaths occurring in adults [2,3,11]. Adults are more prone to the infection in hot tropical areas probably because the higher temperatures and humidity affect the activity of the virus making it less likely for residents from such countries to develop the disease in childhood. The high frequency of early childhood respiratory herpes infections in developing countries is also believed to delay chickenpox to adulthood[12]. This has been the observation in a study from the United Arab Emirates[13] where the immigrants from developing tropical and sub-tropical countries accounted for 84.6% of patients with VP as compared to 11.5% of Emiratis.

Several risk factors for the development of VP have been identified. These include male sex, smoking, severity of the Varicella as manifested by the number of skin lesions, chronic lung disease, pre-existing neoplasm, immunosuppression and pregnancy. Males are more at risk from VP probably because of the higher prevalence of smokers among this group. One recent study from Spain however had more females than males with VP 7 females to 1 male [14]. All patients in this study were smokers. Smoking is an important risk factor because cigarette smoke has an effect on the nasal mucosa leading to enhanced primary viraemia and a higher possibility of pneumonia. It has

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also been shown that smoking renders alveolar macrophages more susceptible to infection by herpes viruses [15]. Thus, in two studies, 23 of 53 patients who smoked developed pneumonia compared to only 1 of 43 patients who did not[16,17]. Close contact with a patient's child has recently been identified as an independent risk factor for VP in adults[18]. This is believed to be due to the larger infecting dose because of the closer contact and therefore an enhanced primary viraemia. This has been our observation in a recent study[19] in which household contacts were responsible for the infection in 58.33% of cases of Varicella pneumonia. Children who contract chickenpox from their siblings also tend to have more severe disease as do patients who contract the disease from index cases[20]. VP is more common in pregnant patients with Varicella than in the adult immunocompetent population[21] and with a much higher mortality of 35 -40%. This is because of a higher incidence of respiratory failure. The perinatal mortality is even higher at 65%[22]. The severity of disease as manifested by the higher number of spots has also been shown to determine the incidence of VP. Patients with higher number of spots have been shown to have a higher incidence of pneumonia (mean 129 vs 91; P =13)[23]. Immunosupressed patients are also more prone to develop pneumonia. In a study of 12 patients with human immunodeficiency virus infection admitted with Varicella, 7(58.33%) developed VP with a mortality of 43% in spite of early antiviral therapy[24]. Similarly, of 29 adult renal allograft recipients with varicella, 29% developed VP with an overall mortality of 34 %[25].

CLINICAL FEATURES:

Respiratory symptoms may precede, coincide with or present after the rash. The mean period between the onset of rash and respiratory symptoms is 0 - 6 days. [13, 14, 18, 26, 27,28] The cardinal symptoms of pneumonia are fever, cough and dyspnoea[28, 29]. There is indeed a strong correlation between new respiratory symptoms and pneumonia[16, 18, 29,30]. The persistence of fever and the development of new onset cough when new lesions are still erupting are considered to be the best indicators of VP[31]. Haemoptysis has been reported with variable frequency. Although none of the patients reported by Jones et al had haemoptysis[26], this symptom was earlier identified as a common feature[27,32]. In our series of twelve patients,3(25%) presented with haemoptysis. The frequency of this symptom notwithstanding, there is a need to ensure that certain sinister causes of haemoptysis are considered and if necessary, excluded. These include pulmonary embolism (a consequence of immobility) and bronchogenic carcinoma (in smokers) among others. The duration of symptoms in relation to commencement of treatment has a bearing on the overall outcome[33]. Physical signs are notoriously poor guide to the presence and severity of Varicella pneumonia[34] and a significant number of patients may develop severe VP without clinical signs.

This underlines the need for early identification of patients at risk of developing pneumonia. It should however be noted that patients may not have respiratory symptoms and yet have radiologic signs or indeed may have abdominal symptoms. Clinical suspicion should therefore be high and patients at risk should be closely monitored for the relevant signs as outlined earlier.

RADIOLOGICAL AND LABORATORY FEATURES:

The characteristic radiological sign of VP is diffuse nodular infiltrates that tend to be discrete at the periphery and to coalesce towards the hila and bases of the lungs as seen in Fig.1and Fig.2, which Show extensive bilateral infiltrates in a patient who later died of VP. Hilar lymph node enlargement may be seen[28,35] although this may be masked by the coalescence of infiltrates in that region. Pleural effusion is uncommon and never large. Clearing of radiologic shadows usually takes from nine days to several months. Widespread miliary foci of calcification may follow VP and, although a common examination question, occurs in only 1.7% of patients with presumed VP and about one in every 2000 chest radiographs in the general population[36]. In general, radiologic changes are far more common than symptoms. A study of military recruits by Webber and Pellechia found radiologic abnormalities in approximately one in six patients but only a quarter of those with changes had cough[37].

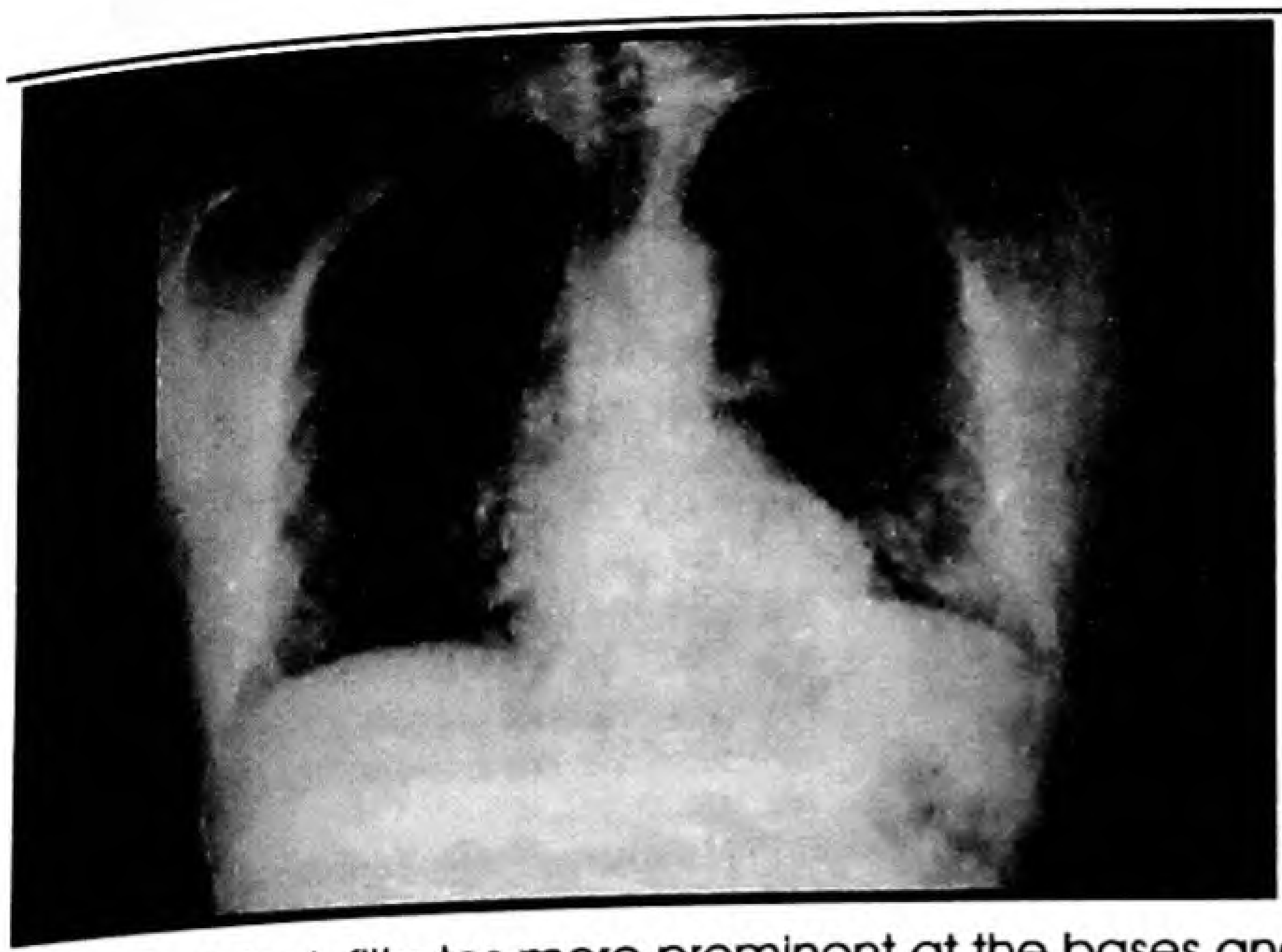
Leucocytosis is an uncommon presenting feature except where there is super added bacterial infection. Thrrombocytopenia has been frequently observed. A platelet count of less than 150,000/mm3 occurs in between a third and ninety percent of patients[33,29,38]. Thrombocytopenia is believed to be due to the direct effect of the virus on platelets leading to shortening of the platelet survival rather than to immunologic mechanisms, which manifest at a later stage[39]. It is not associated with bleeding and the platelet count reverts to normal with resolution of pneumonia.

Another common laboratory observation is derangement of liver function tests in the form of elevated transaminases. In our series of twelve patients, 10(83.33%) had a 1.7 to 6 times rise in transaminases. None of the patients had clinical hepatitis.

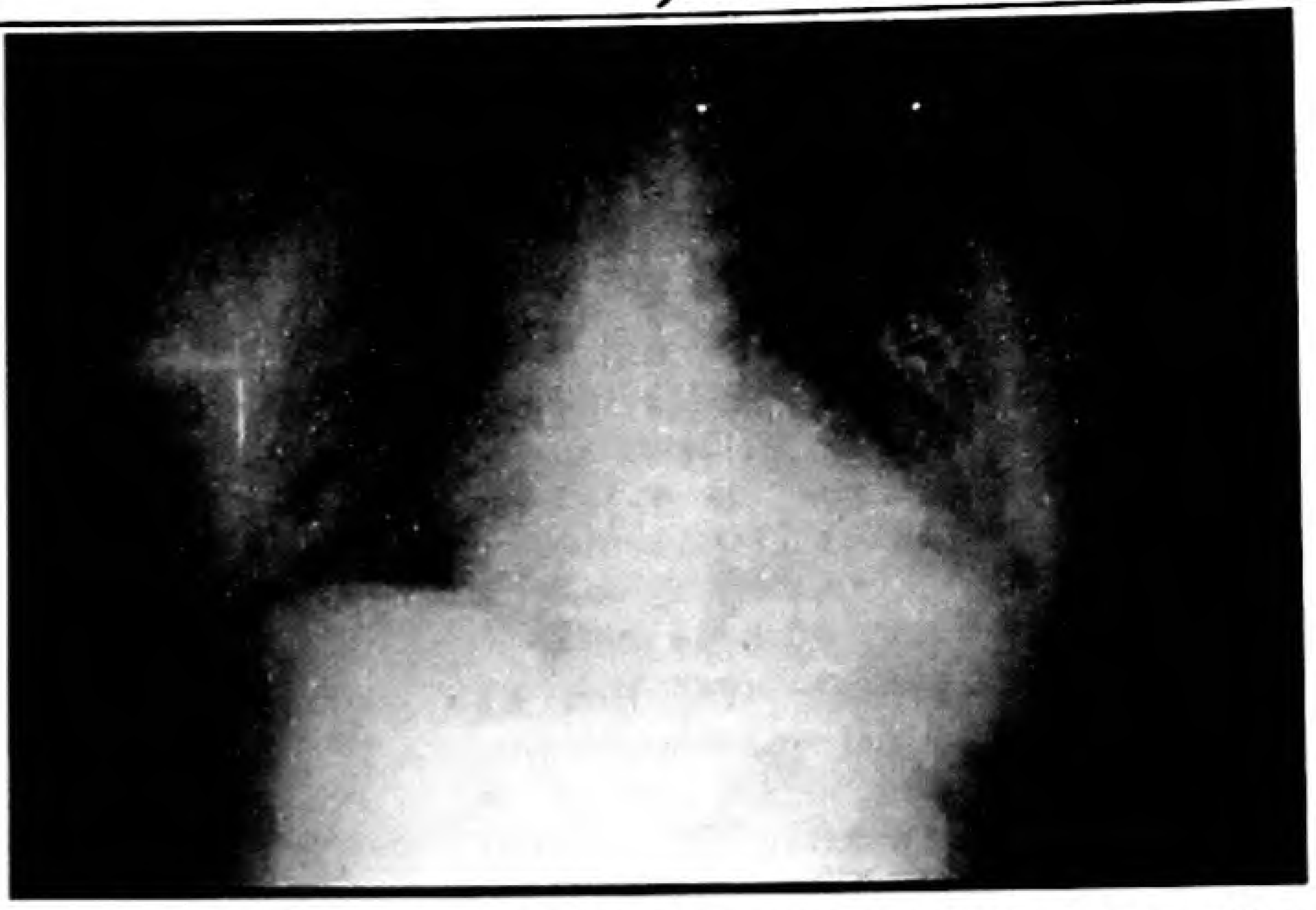
Clinical hepatitis with liver failure is rare in immunocompetent patients and has only been reported once in the literature[40]. On the other hand biochemical hepatitis has previously been observed in children to nearly the same extent as in this study[41]. In adults, alanine transaminase was found to be higher in patients with VP and the only factor strongly associated with severe disease[33]. It is therefore prudent to evaluate the liver functions in patients at risk of severe disease and VP in particular. Hyponatremia has been observed in 50% of cases in one study[42] but this has not been our observation as only one (8.33%) patient in our series had hyponatremia[19].

TREATMENT:

As with all viral pneumonias, there are no randomised controlled trials on any aspect of treatment. The current consensus is to use acyclovir at a dose of 10mg/kg eight hourly for 7,10 days. Acyclovir is a deoxyguanosine analogue that targets at the viral DNA polymerase, acts as a chain terminator and is active against herpes simplex and varicella zorster viruses. It has been recommended for use in immunocompetent adults with varicella[43]. It was first reported to be effective in a report in 1980[44]. In a multicenter restropective controlled study, Haake et al demonstrated that early administration of ACV (i.e within 36 hours of admission) is associated with a reduction of fever and tachypnoea and improvement in oxygenation in healthy



Shows Nodular infiltrates more prominent at the bases and hilar regions.



Shows extensive infiltrates involving both lungs in a patient who subsequently died of VP.

adults with VP[45]. The early oral administration of ACV has also been shown to reduce the time of cutaneous healing, fever and severity of symptoms. In uncomplicated cases however, initiation of oral therapy after 24 hours is of no benefit[46]. In a review of 46 reports Mohsen and McKendrick[47] reported 11 of 179 patients treated with acyclovir died compared to 17 of 89 patients who received no treatment and none of the other six patients who had other antiviral treatment. There was a significant difference between the groups who did not receive acyclovir (OR 3.6, 95% CI 1.63, 7.95; p=0.001). The recommendation therefore, is to start intravenous ACV as soon as possible. Since the side effects of ACV are minimal if adequate hydration is maintained, there should be no delay in starting ACV as soon as VP is suspected. Acyclovir is currently not licensed for use during pregnancy although data from over 1,400 pregnant women did not show increased fetal abnormalities as a result of it use[48]. The risk of withholding treatment particularly in the second half of pregnancy is so high that the benefits of treatment outweigh the risk of adverse effects in this group[47]. The use of adjuvant steroids is controversial as there is, to date, no controlled study evaluating this aspect of therapy. A recent uncontrolled study involving 15 patients has demonstrated that patients who received steroids had shorter hospitalization, shorter ICU stay and lower mortality compared to those who did not[9]. Also a review of 120 cases of VP has shown that the combination of an effective antiviral acyclovir with steroid may be associated with a lower mortality than acyclovir alone (0% vs 10.3%)[49].

This would suggest that steroids may improve the outcome in cases of severe VP. Controlled studies are obviously needed before categoric recommendations can be made.

Varicella pneumonia can rapidly progress to fulminant respiratory failure as occurred in four (33.33%) of our 12 patients[19]. There are numerous reports of successful management of severe VP with continuous positive airway pressure (CPAP) ventilation[50,51]. This modality should be considered before resorting to mechanical ventilation in patients with progressive respiratory fatigue. Where conventional ventilation proves refractory, extracorporeal membrane oxygenation/life support (ECMO/LS) may be used with good outcome. Of 21 patients treated using ECMO/LS, 17 survived[52-54]. Adding 20 parts per million of nitric oxide to the inspiratory gas led to the improvement of oxygenation form 75% to 88% and to the survival of a pregnant patient with fulminant VP[55]. This modality can therefore be considered in severely ill patients.

MORBIDITY AND MORTALITY:

There are few studies addressing the sequel of VP in adults[17,18,56]. All of them indicate that the main abnormality was a defect in the single breath transfer factor of the lung for carbon monoxide (TLCO). This defect was noted even in those patients without pneumonia although the pneumonia group has more severe defect. There is a suggestion that these changes may be permanent[56]. Forced expiratory volume in one second (FEV1) and forced vital capacity (FVC) were also noted to be temporarily reduced although the ratio of FEV1 to FVC remained normal[18,56]. This indicates that varicella leads to a restrictive lung defect and may be a result of diffuse inflammation of the lung tissue.

Mortality from varicella pneumonia without the use of ACV is in the range of 7 -11%[27,28]. Recent studies in other centers in which intravenous ACV was used early in the course of management have demonstrated substantial reduction in mortality ranging from 3.33% to 6.66%[26,29,42]. Even in patients requiring intensive care, the mortality has substantially decreased to between 13.6 to 25%[57,58].

PREVENTION:

Since mortality in VP still remains high, emphasis should be placed on prevention of varicella especially in patients at increased risk of VP. Varicella vaccine has been shown to prevent or modify Varicella infection if used less than 3 days after exposure[59]. The safety, efficacy and cost-effectiveness of the varicella vaccine, a live attenuated Oka strain, have been demonstrated leading to its routine use in the United States of America in 1995. In 1998, the European Working Group on Varicella (EuroVar) was formed and it recommended the vaccine for all healthy children 12-18 months old, all susceptible children before 13th birthday, catch up vaccination in older children without history of varicella and adults at high risk[60]. Similarly acyclovir and varicella zorster immunoglobulins(VZIG) are also increasingly being used as prophylaxis/ treatment during the incubation period in order to prevent or modify the disease in patients at high risk of complications[61,62]. VZIG is particularly useful as post-exposure prophylaxis in pregnant patients in whom varicella vaccine is contraindicated.

CONCLUSION:

Varicella pneumonia is a serious complication of varicella in adults. The presentation is varied and mortality remains high. Patients at risk should be detected early, monitored closely and treatment instituted promptly. Post-exposure measures to prevent development of disease or attenuate its effect should be considered in all adults but particularly in patients at high risk for VP.

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Pathology of Bladder Tumors in Kashmir

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ABSTRACT

50 patients of bladder cancer (45 males & 5 females) admitted in SMHS Hospital Srinagar over a period of two and a half years where included in the study. Detailed Cystoscopy was performed in every patient and complete assessment regarding shape, size, number, site, histological type and grade of tumor was done. It was found that 72% of patients had papillary growths, 70% patients had single growth. Majority of the patients (i.e. 46%) had approximate growth size of 2 cms to 4 cms. Lateral walls remained the commonest site of tumor (i.e. 70%). 98% patients had transitional cell Carcinoma, only 2% had Adenocarcinoma. Majority of patients (i.e. 46%) had well differentiated (GI) tumors.

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INTRODUCTION:

Bladder cancer is one of the most common diseases treated by the Urologist. It is the most common site of cancer in the urinary tract. It is about three times more common among men than in women[1]. It is fourth most common cause of deaths in men after lung, prostate and colorectal cancers[1]. It accounts for 2.6% of all cancer deaths in men and 1.4% of all cancer deaths in women. Bladder cancer is a disease of elderly, although it can occur at younger ages also[2]. For last 50 years the incidence of bladder cancer has steadily increased for an overall increase of about 50%. There has been a steady decrease in the mortality rates for the bladder cancer during the same interval for an overall decrease of approximately 33%. Industrialization[3,4] Smoking high protein/ high fat diet[5-12] etc. are associated with increased risk of bladder cancer.

MATERIALS AND METHODS:

The study namely Pathology of Bladder Tumors in Kashmir was conducted in surgical Department of SMHS Hospital Srinagar for a period of two and a half years. 50 patients of bladder cancer, 45 males and 5 females were included in the study. The age of the patients varied between 27-77 years. After a thorough and detailed clinical history, clinical examination and routine blood and Radiological investigations, Detailed Cystoscopy was performed in each patient under local anesthesia. The various observations made at Cystoscopy where as under:

1. Shape of tumors: - Weather Papillary, Sessile, Nodular, Local or diffuse.
2. Number of tumors: - Whether single or Multiple.
3. Size of tumor: - Approximate tumor size in centimeters was assessed on Cystoscopy.
4. Site of tumor or tumors in the bladder.

Multiple biopsies were taken from the tumors and were sent for histopathological examination to know the type and Histological grade of the tumors.

OBSERVATIONS:

The observations made in the study are as under:

SHAPE OF TUMORS

Shape of Tumors	No. of cases	Percentage
Papillary	36	72 %
Sessile (Nodular)	5	10 %
Combined	9	18 %
Total	50	100%

Key Words: *Bladder, Papillary Carcinoma Cystoscopy*

NO. OF TUMORS

No. of Tumors	No. of cases	Percentage
1	35	70 %
2–3	12	24 %
4 and above	3	6 %
Total	50	100 %

APPROXIMATE SIZE OF TUMORS

Approx. Size of tumors	No. of cases	Percentage
1–2 cms	10	20 %
2–4 cms	23	46 %
4 cms and above	17	34 %
Total	50	100 %

SITE OF TUMOR OR TUMORS

Site of Tumors	No. of cases	Percentage
Left lateral wall	21	42 %
Right lateral wall	14	28 %
Posterior wall	3	6 %
Dome	2	4 %
Anterior wall	2	4 %
Base and Trigone	5	10 %
Multiple sites	3	6 %
Total	50	100 %

HISTOPATHOLOGICAL FINDING OF RESECTED SPECIMEN

S.No.	Histopathological type of growth	No. of cases	Percentage
1.	Transitional cell carcinoma	49	98 %
2.	Adenocarcinoma	1	2 %
3.	Squamous cell carcinoma	0	0 %
	Total	50	100 %

GRADE OF THE TUMORS (Resected Specimen)

Grade of tumor	No. of cases	Percentage
G_I	21	42 %
G_{II}	18	36 %
G_{III}	11	22 %
Total	50	100 %

RESULTS AND DISCUSSION:

Lot of work has been done on the pathology of carcinoma bladder for last 50 years. 95% of the primary bladder tumors originate in the epithelium (transitional, Squamous, Adenocarcinoma and mixed) and 5% arise from the connective tissue (Angioma, myoma, Fibroma and sarcoma)[14]. Among the epithelial tumors over 90% are transitional[15], 5% squamous cell (apart from areas where Bilharziassis is endemic)[8,15,16] and 1–2% are Adenocarcinoma[8]. Superficial bladder tumors account for 70% of new cases. These tumors may be single or multiple. Single papillary tumors account for significant proportion of bladder cancers and carry an excellent prognosis[17-19]. Muscle invasive tumors are found in 25 % of new cases and such tumors carry a much worse prognosis as they are subject to local invasion and distant metastasis[20]. Flat, non-invasive carcinoma in situ accounts for 5% of new cases and unless diagnosed and treated promptly, carries a poor prognosis[11,21]

In our study 72% patients had papillary type, 10% were having sessile (Nodular) growths and 18% patients were having combined character growths. Solitary growths were found in majority of our patients (70%). 24% patients were found to have tumor numbers of 2–3 and 6% patients had tumor number as 4 or above. 46% patients had approximate tumor size of 2–4 cms, 20% had approximate tumor size of 1–2 cms and 34% patients had approximate tumor size of 4cms or above. 42% patients had growths on left lateral wall followed by 28% on right lateral wall, 10% on base and

Trigone, 6% on posterior wall, 4% on dome of bladder, 4% on anterior wall and 6% on multiple sites.

Histopathology of the operated specimens showed that 98% of our patients were having transitional cell carcinoma and 2% had Adenocarcinoma (Arising from urachus). No patient in our study had Squamous cell carcinoma. 42% of our patients had well differentiated (Grade-I) tumors, 36% had moderately differentiated (Grade-II) tumors and only 22% had poorly differentiated (Grade-III) tumors. **Thus it was concluded from the study that although bladder carcinoma is fairly common in Kashmir but mostly the growths are superficial, single, papillary, well differentiated transitional cell carcinoma.**

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Original Article

Miniature Punch Grafting In Recalcitrant Vitiligo

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ABSTRACT

Different grafting techniques have been developed to treat vitiligo resistant to medical therapy. Autologous miniature punch grafting is the most commonly used and the simplest of these procedures. Thirty Kashmiri patients suffering from recalcitrant vitiligo of 2-25 years duration were treated with miniature punch grafting of their vitiligo lesions. A remarkable response in the form of >90% repigmentation of lesions was seen in 23 patients (77%). In 4 patients the response was fair with 50-80% repigmentation while in further 3 patients depigmentation of the donated grafts was observed. Complications arising as a result of the procedure were minimal.

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INTRODUCTION

Vitiligo is one of the commonest skin disorders affecting more than 1% of the world population[1]. The disorder causes significant morbidity in the form of cosmetic disfigurement in affected patients. This is especially true of patients with pigmented skin and patients in whom the lesions are on exposed parts. Grafting, of which a number of techniques are presently available, treats vitiligo not responding to medical therapy. Miniature, autologous punch grafting is the simplest and the most commonly employed of all these grafting techniques[2,3]. The procedure involves the transplantation of small circular full-thickness skin grafts, usually 1.5mm to 3.0mm in diameter, taken from cosmetically hidden donor areas, to preformed circular beds on the vitiligo lesions. The melanocytes in the transplanted grafts are then stimulated and they donate pigment not only to the grafts but also to the surrounding vitiliginous skin. In this manner the whole of the lesion is repigmented[2,3].

This paper deals with the experience of miniature punch grafting technique in Kashmiri patients with recalcitrant vitiligo.

MATERIALAND METHODS

Thirty patients belonging to the ethnic Kashmiri population and suffering from recalcitrant vitiligo, non-progressive for at least one year, were taken up for the study. All the patients were unresponsive to different medical therapies available for the treatment of vitiligo. The patients were routinely investigated for any bleeding tendency and also for any other associated disorder if evident from the clinical evaluation. Some of the patients had residual lesions after PUVA therapy not responding to increasing doses of UV-A. The patients were subjected to autologous miniature punch grafting as per the standard procedure. The graft size used ranged from 2.0mm to 3.0mm depending upon the cosmetic importance of the site involved. The donor sites chosen for taking the grafts included the retro-auricular area, the inner arm or the buttocks. The grafts were then transplanted onto preformed beds of the same size placed at intervals of about 4-5mm from one another. After the grafts had taken up the patients were put on a combination of either topical or oral PUVASOL [Psoralen + solar exposure] and topical steroid therapy. The patients were then followed up for evaluation of perigraft pigment spread, extent of repigmentation achieved, cosmetic matching of the grafted skin and also for any adverse effects. In patients with extensive lesions grafting was performed in multiple sittings.

RESULTS

The age of our patients ranged from 14 years to 32 years with a mean of 21.9 years. The duration of vitiligo ranged from a minimum of 2 years to a maximum of 20 years with a mean of 8.6 years. The different morphological types of vitiligo seen in our patients

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Key Words: *Vitiligo, Miniature punch grafting.*

were vitiligo vulgaris in 16 patients, segmental vitiligo in 11 patients and acrofacial vitiligo in 3 patients. The percentage body surface area involved ranged from less than 1% to about 5%. The commonest site where the grafting was performed was the face followed closely by neck [Table 1]. Number of grafting sittings required ranged from 1-4 depending upon the extent of vitiligo. The commonest donor site used was the inner arm followed by the retro-auricular area.

The extent of repigmentation was graded as poor (<25%), good (25-75%), very good (75-90%) or excellent (90-100%). Overall, 23 patients showed total (100%) repigmentation of lesions, 4 others achieved very good repigmentation (50-80%) while 3 patients had a poor response (Table 2). Patients, in whom the response to treatment was poor, the grafted punches in fact got depigmented over the course of time. The cosmetic matching was perceived as excellent by 21 patients while 4 others judged it as good.

Adverse effects that were noted were a cobblestone appearance in 6 patients (20%), pigmentary mismatching [hyperpigmentation] of the grafted lesions in 3 patients, depigmentary line between the repigmented area and the surrounding normal skin in 2 patients and reactivation of vitiligo in 2 patients (Table 3). Infection of the grafted area or graft rejection was not observed in any of the patients.

Table 1: Sites where the grafting was performed

Site of grafting	Number of patients	Percentage
Face	13	43.3%
Neck	12	40%
Forearms, hands	3	10%
Other areas	2	6.7%

Table 2: Extent of repigmentation achieved

Extent of repigmentation	Number of patients	Percentage
Excellent (>90%)	23	76.7%
Very Good (50-90%)	4	13.3%
Poor (<25%)	3	10%

Table 3: Adverse effects seen

Adverse effect	Number of patients	Percentage
Cobblestoning	5	16.7%
Hyperpigmentation of grafted area	3	10%
Depigmentary line	2.	6.7%
Reactivation of vitiligo	2	6.7%

DISCUSSION

Therapeutic intervention in patients with vitiligo is not always successful. A subset of patients affected with this disease is refractory to almost every medical treatment available. Managing this subset of patients is always a challenging task and calls for some type of a surgical intervention. Surgical treatment for vitiligo has been in vogue in India since the last more than one decade but here in our valley the treatment was not available until recently. Over the last 2 years 30 patients suffering from refractory vitiligo have been treated with miniature punch grafting in our department and the overall results that we have achieved are at par with those reported by most of Indian studies. An excellent response in the form of 90-100% repigmentation of lesions was achieved in about 80% patients in our study. This compares well with the response rate reported by Sarkar R et al in their study on segmental vitiligo[2]. A similar response rate has been reported by others [4,5]. Gupta S et al, in their study comparing the repigmentation achieved with punch grafting and suction blister grafting, have observed a 90-100% repigmentation in only 67% of patients after punch grafting[3]. The usual adverse effects observed in the above mentioned studies have been cobblesoning, 'polka-dot' appearance, depigmentary junctional line and cosmetic mismatching. We did encounter the same profile of side effects in our patients but only in a small minority of patients.

To conclude we found miniature punch grafting to be a very effective treatment option in the management of vitiligo unresponsive to medical therapy.

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Original Article

Ventilatory Care in Kashmiri Neonates

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ABSTRACT

Mechanical ventilatory support is one of the major supportive modalities used in Neonatal Intensive Care Unit (NICU). There has been a tremendous growth in the use of conventional ventilation techniques & it has had a definite impact on the survival of the sick neonates. A two year hospital based study was conducted, in which, out of 1275 patients, 125 (9.8%) needed various forms of mechanical ventilation for respiratory failure. The common indications for ventilatory care included birth asphyxia, septicemia, pneumonia, apnoeic attacks, Meconium Aspiration Syndrome, post-operative care for pediatric surgical neonates & Hyaline Membrane Disease (HMD).

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INTRODUCTION

Progress in Neonatal Intensive care is closely linked to the improvements in the management of respiratory failure in small infants. Ventilatory care is used for pre-term babies with immature lungs & full-term babies with respiratory distress of various etiologies leading to respiratory failure[1]. Mechanical ventilation is an invasive life support procedure & the goal is to optimize both gaseous exchange & clinical status at a minimum FiO2 (inspired oxygen fraction) & Ventilator pressure/Tidal volume[2]. Ventilators are sophisticated electronic air pumps. The type of ventilator used is not as important as the level of training and experience of the personnel using them[3].

A hospital based two year study was conducted from July 2002 to June 2004 to know the indications & outcome of this invasive technique in a Level III tertiary care centre.

MATERIALAND METHODS

This study was carried out on hospitalized patients at S.K.Institute of Medical Sciences in the Department of Neonatology (Neonatal Intensive Care Unit NICU) which is a tertiary care centre in Kashmir. Cases were referred from Obstetric unit of the Institute, Children's Hospital & Lala Ded Hospital of Govt. Medical College, Srinagar & various district headquarter hospitals of the valley.

Our NICU (Neonatal Intensive Care Unit) is with in-house facilities for various laboratory investigations, portable X-Ray, ultrasound, central oxygen supply, compressed central air, central suction, pulse oximetry, ABG Machine & sophisticated ventilators (Siemens Servo Model-300). In addition a back-up with Central Biochemistry, Microbiology & Hematology labs is available along with various other superspeciality departments.

Referred patients were evaluated with detailed history, complete examination, metabolic & septic work-up and X-ray chest. Endotracheal intubation was taken for ventilatory care after establishing the severity of respiratory distress & failure as determined by ABG analysis.

The goal of management of infants with respiratory disorders was to maintain PaO_2 between 50-80 mmHg, $PaCO_2$ 35-45 mmHg & pH 7.35-7.45. Infants with severe respiratory distress as evidenced by marked tachypnoea (respiratory rate >80/min), severe chest retractions, cyanosis in FiO_2 of 0.6 and prolonged apnoeic attacks needed assisted ventilation. Laboratory criteria for ventilation included PaO_2 <50mmHg despite CPAP with FiO_2 1.0, $PaCO_2$ >50mmHg & pH < 7.2.

Pressure control mode of the ventilator was used with various settings of Intermittent Positive Pressure Ventilation (IPPV), Pressure regulated volume control, Synchronized Intermittent Mandatory Ventilation (SIMV) & continuous

Key Words: *Ventilatory Care, Neonatal Intensive Care Unit (NICU), Respiratory Failure*

Positive Airway Pressure (cPAP). Initial settings used were FiO_2 (inspired O_2 fraction)- 0.5 (50%), rate 40-50/min, Peak Inspiratory Pressure (PIP) 18-20cm H_2O, Peak End Expiratory Pressure (PEEP) 4-5 cm H20 & flow rate of 6-8 L/min.

Arterial Blood Gas (ABG) estimations were done prior to intubation, soon after establishing the ventilation & six hours later. The ventilators settings were modified as per the ABG reports & depending upon the various conditions of indication. Frequent endotracheal suctioning, thermoneutral environment, all aseptic precautions, 2/3rd IV fluids (to avoid SIADH Syndrome of Inappropriate ADH secretion) & treatment of the basic underlying disease were provided.

Weaning from the ventilator was done slowly, depending on the improvement, in a stepwise manner over a period of 2-7 days. Aminophylline and Dexamethasone were used in three 12 hourly doses on extubation to improve the respiratory muscle efforts & preventing laryngeal edema/ inflammation.

RESULTS

Out of 1275 admissions over a two year period from July 2002 to June 2004, 125 (9.8%) patients required assisted ventilation. Out of 125 babies, 40(32%) had recurrent apnoea due to prematurity complicated by other problems (pneumonia), 32(25.6%) had birth asphyxia, 28 (22.4%) had septicemia, 8 (6.4%) were post-operative, 7(5.6%) had Meconium Aspiration Syndrome, 6 (4.8%) Hyaline Membrane Disease & 4 (3.2%) had intractable seizures. Gestational age of the babies was between 28-40 weeks. Out of 125 babies, 82 (65.6%) were less than 2500gm in weight & 43 (34.4%) were more than 2500gm in weight. 40 (32%) weighed less than 1500gm, 18 (14.4%) were between 1501-2000gm & 24 (19.2%) were between 2001-2500gm. The male to female ratio was 65: 35.

Ventilation was provided for 2-7 days. Out of 125 ventilated babies, 69 (55.3%) survived & 56 (44.7%) expired. Among survivors, 28 (22.5%) were from prematurity group, 19 (15.2%) from birth asphyxia, 17(13.6%) from septicemia group, 2 (1.6%) post-operative, 2 (1.6%) Meconium Aspiration Syndrome and 1(0.8%) Hyaline Membrane Disease. No patient having intractable seizures survived. (Table)

DISCUSSION

During the study period of two years, out of 1275 patients, 125 (9.8%) required ventilation. This figure was 10.6 %, 8.9%, 13% & 5.6% in studies by NK Mittal et al[4], Nangia et al[5], Mathur et al[6] and Riyas et al, respectively.

Ventilation was started <24hrs in about half of the patients. Commonest indication for assisted ventilation in our study was prematurity with complications, followed by birth asphyxia & septicemia. Birth asphyxia was commonest cause for ventilatory care seen by Riyas et al[7]. Meherban Singh[8] & Maiyya et al[9] have found Hyaline Membrane Disease as commonest cause for assisted ventilation. This was an infrequent cause in our patients.

Overall survival rate in our study was 55.3% as compared to other Indian studies, who reported 41.3-58.3%. One-fourth deaths occurred within 24hrs of ventilation as these patients were brought in very sick conditions. Maximum mortality was seen in intractable seizures, hyaline membrane disease, birth asphyxia & septicemia as has been seen by others[4].

CONCLUSION

Neonatal ventilation is a very important tool to improve survival of sick neonates & is more helpful if started well in time rather than as a desperate measure. Referring centers need to be educated about proper referrals well in time. More trained staff and gadgets are needed to improve the survival of the sick, preterm & precious neonates.

TABLE

Cause	Ventilated patients Total – 125 (100%)	Survivors Total – 69 (55.3%)
Prematurity with complication (pneumonia, recurrent apnoea)	40 (32%)	28 (22.5%)
Birth asphyxia	32 (25.6%)	19 (15.2%)
Septicemia	28 (22.4%)	17 (13.6%)
Post-operative	8 (6.4%)	2 (1.6%)
Meconium Aspiration Syndrome	7 (5.6%)	2 (1.6%)
Hyaline Membrane Disease	6 (4.8%)	1 (0.8%)
Intractable seizures	4 (3.2%)	0 (0%)

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Case Report

Haemangiosarcoma of The Breast Review of Literature & Report of Two Cases

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ABSTRACT

Haemangiosarcoma of the breast, is a very uncommon tumour. Upto 1985 only 159 cases were reported in the literature. But recent review of latest literature has reported many more cases. First case was reported by Schimdt in 1887. These tumours arise from the vascular tissue of the breast. They are highly malignant & fatal. Different authors,have named it differently. But the nomenclature of haemangiosarcoma is a more descriptive term. Even in the advanced stages of the disease,the local manifestations are much less,and the occurence of the distant metastasis is most common.

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REPORT OF CASES

Two case are being reported by us. The first patient was an unmarried girl aged twenty years. She presented with the main complaints of a swelling in the right breast, associated with pain of three months duration. She was admitted in the Govt. Medical College hospital, Jammu, in Dec. 1998. The swelling was hard in consistency and was tender. It was fixed to the overlying skin and had ulcerated. It was well circumscribed and was 5 x 4 cms in size. F.N.A.C. report was inconclusive. Clinically the patient had no axillary lymphadenopathy and there was no evidence of distant metastases. The patient was subjected to simple mastectomy and axillary lymph node biopsy. The histopathology report suggested it to be a case of tumour of vascular origin and more specifically an angiosarcoma. After reviewing the literature it was decided that no form of adjuvant will be given to her and was asked to come for regular follow up. The patient reported to the emergencydepartment of the hospital with severe breathlessness and high grade fever. X-ray of the chest showed canon ball type secondary in her right lung and pleural effusion of the same side. This effusion was drained and blood transfusion were given to correct her anaemia. The patient died on the third day after this admission due to severe respiratory failure.

The second patient is a 35 yrs. old Muslim, married and multiparous lady, coming from the Indo-Pak border area of the Rajouri district of the Jammu province of the J&K State of India. She was first seen by a senior surgeon in her home town, in the month of June 2001. The patient presented with a chief complaint of a swelling, which was associated with mild pain in her left breast since last 2 months. The patient had no history of trauma to the breast. She did not give history of . benign or malignant breast disease in any of her blood relations. There was no history of discharge from nipple of the affected or the contralateral breast. She had no complaints in the contralateral breast. The patient did not give history of previous breast biopsies or radiation therapy. The tumour was subjected to biopsy. The histological report suggested that the tumour was a haemangiosarcoma, with intermediate grade of aggressiveness. (Figure I)

The patient reported to Jammu and consulted one of the authors, (S. Singh), at his nursing home. Examination of the patient revealed a healing scar mark in the upper & the outer quadrant of the left breast. There was a residual swelling at the site of the biopsy, measuring about 5cms in diameter which was fixed to the skin, but not to the underlying muscles. There was a small ulcer in the area of the lateral part of the scar, of the previous surgery. It was hard and non tender. The nipples of both the breasts were normal. There was no axillary or supra clavicular lymphadenopathy of the affected or the contralateral side. The abdomen, the skeletal system and the overall general physical

Key Words: *Vascular breast tumours, mastectomy, Radiotherapy, Tumour specific antibodies.*

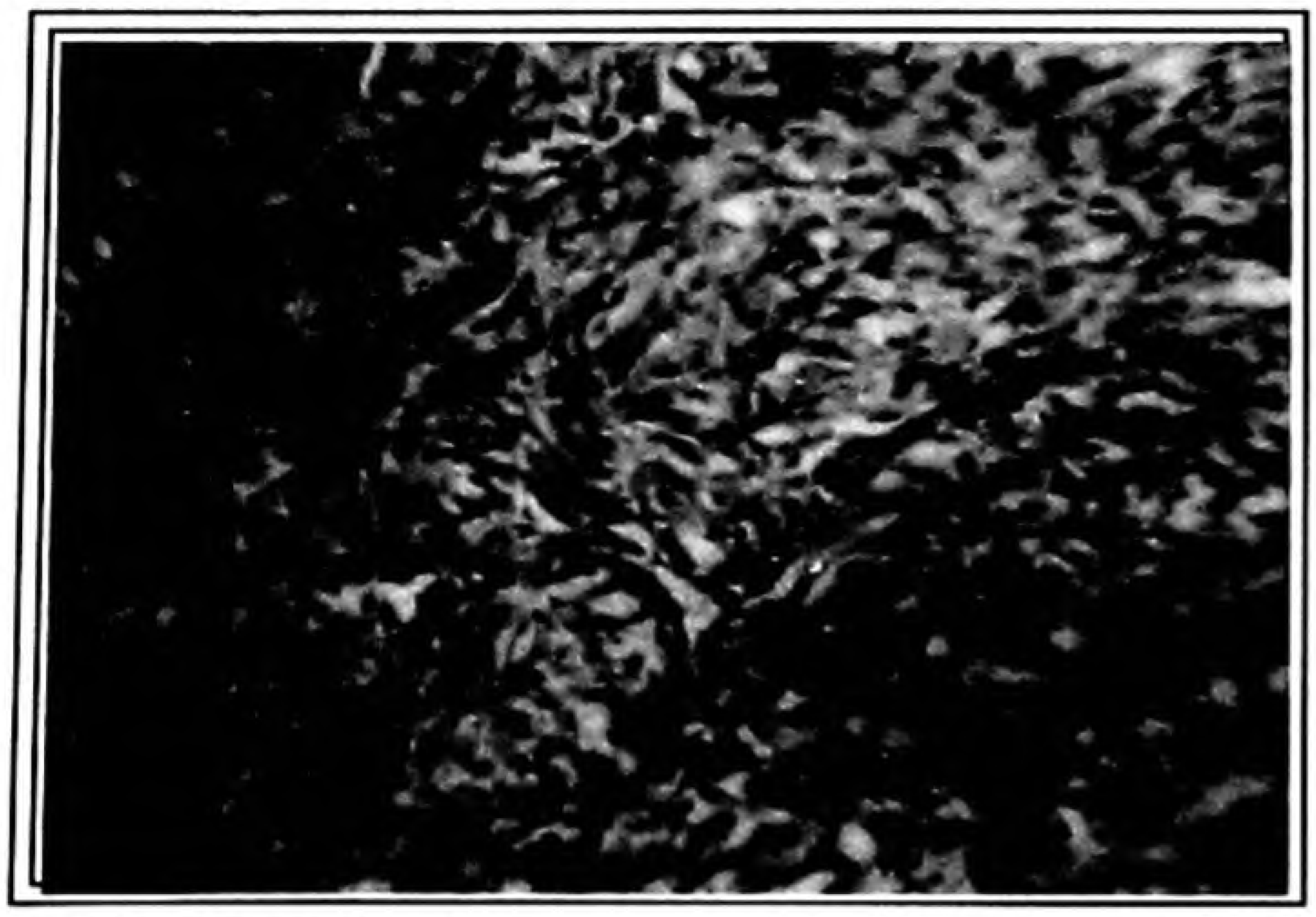

Fig-2 (LP-10x) : Lower power view shows proliferating oval to spindle shaped cells with freely anastomosing vascular channels in between.

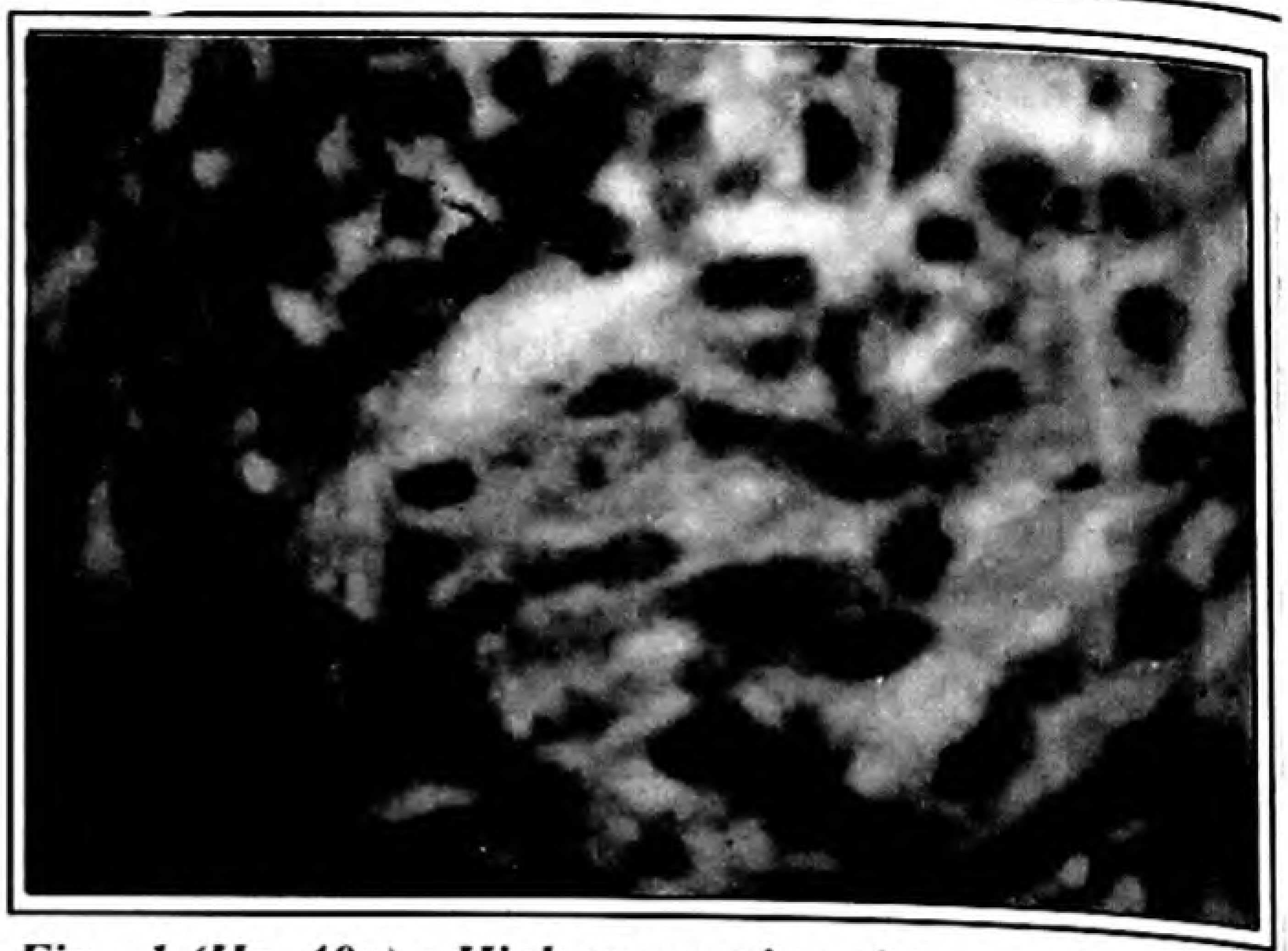

Fig - 1 (Hp–40x) : High power view shows oval to plump spindle cells resembling endothelial cells and appearing to line these vascular spaces. Individual cells have large hyperchromatic nuclei with coarse clumped chromatine.

examination of the patient, did not reveal any abnormality. The skiagram of the chest and the ultrasound of the abdomen did not show evidence of the metastasis. The patient was slightly anaemic with a haemoglobin of 9 gm%.

She was subjected to simple mastectomy on 24th of June 2001. The skin was apposed with a continuous subcuticular prolene 1/0 suture. The drain was removed on the third postoperative day. The postoperative period was uneventful. She is coming for regular follow up and has not been subjected to any form of adjuvant therapy. The hormonal studies showed normal levels of luteinizing hormone and follicular stimulating hormone. Pathological findings demonstrated a marked proliferation of irregular vascular channels and endothelial cells. These cells had scanty cytoplasm with round nuclei. Necrotic foci and marked haemorrhagic areas were seen in between. Mitotic figures were observed.

REVIEW OF LITERATURE

Microscpically , the haemangiosarcomas of the breast have been shown to exhibit different patterns.They could be of a well differentiated angiomatous type or may show a well differentiated solid pattern[1-3].

McClanahan and Hogg[4] reported a series of 6 cases of hemangiosarcoma Steingazner et. al.[5] have reported 10 cases suffering from this disease in 1965. Isolated single case reports with review of literature have been reported by various authors. Gulesserian and Lawton[6] reported a case suffering from haenonogiosarcoma of breast in 1969. Chen et.al. presented a new case with review of 86 previously reported cases in 1979[7] Thomas Hunter et.al.[8] reported 2 cases in 1985. One of the patients reported by them, was suffering from bilateral haemagiosarcomas of both the breasts.Kaur[9], reported a 32 year old pregnant lady,suffering frm this vascular malignant lesion of her right breast.This was a well differentiated haemangiosarcoma. Lately, reports are appearing in the oncological literature, which describe an increased incidence of angiosarcomas of the breast , following the breast preservation therapy and local radiation therapy for the breast carcinoma.[10-14]. After having scanned the literature, we have not come across any case of haemangiosarcoma reported in an unmarried and nulliparous patient, so far.

DISCUSSION

Hemangiosarcoma is a rare breast tumour. The overall incidence is 0.04% of all the breast malignancies[15] of all the sarcomas of the breast, about 8% are haemagiosarcomas[16]

They are usually painless breast swelling and may exihibit sudden increase in size,. They usually present in the 3rd & 4th decades of life.Our second patient also belonged to the same age group, but the first patient was much yonger than these mentioned age groups. Both the patients, had a painful lump .In the second case the lump increased in size after biopsy, which probably was, incisional. The tenderness associated with breast lump as complained by both these patients, has also been seen by few authors. Our first patient was an unmarried girl. So far no case of an unmarried or nulliparous woman has been reported to be suffering from this tumour. The second case is a mother of 4 children. These tumors are most likely to be hormone dependent, as some cases have been reported to occur during the pregnancy[17-18]. The tumour of our patient was not subjected to any hormone receptor study. Though right breast gets mostly involved[19], both our patient had the lesion of their left breast. Sometimes both the breasts may be involved. The mass is usually deep seated, is not fixed to overlying skin or underlying muscles. One of our patient had a swelling which was fixed to the skin and the scar.

The patient can present with skin discoloration or ulceration. Our patient didn't have any skin discoloration but had ulcerated at the lateral aspect. The role of doing hormonal receptor studies and the hormonal dependency of the vascular tumours of the breast, is still unclear[20]. Regional lymphadenopathy is rarely seen. Only 3 patients with associated axillary lymphadenopathy have been reported so far[21]. The common route of spread is through blood stream[22]. Metastasis of this tumour may be seen in unusual sites like, ciliary body and the iris. It may mimick radiation dermatitis of the breast and more so in breasts that have been subjected to lumpectomy and irradiation therapy[23] Prosthetic implants of the breast have been shown to be associated with development of haemangiosarcoma of the breast[24].

In view of the non-involvement of the regional lymphnodes,simple mastectomy has been recommended to be the, method of treatment. Sometimes this surgical approach may leave some residual tumour which will lead to local recurrence.

Adjuvant treatment in the form of radiotherapy or chemotherapy has not shown any benefit[25]. These tumours are the most malignant of the breast neoplasms[26], with a mean survival not exceeding 2 years. Some patients have been reported to live beyond 5 yrs.

The principle cause of death,in these cases, is due to wide spread metastasis and hemorrhages from secondaries and more so from solid viscera like spleen[27].The prognosis is directly related to the size of the tumour.The cause of death in our first case was the pulmonary and pleural metastasis,which is a rarely reported site of metastasis.The male breasts are rarely affected by this disease and only 2 cases of haemangiosarcoma have been reported so far[28]. F.N.A.C reports may be deceptive, at times. The same has been our experience. They can be confused with phylloides tumour and atypical haemangioma of the breast[29]. Tumour therapy of these vascular tumours of the breast, with the immunotoxins, is still in the experimental stage[30]. Tumour specific andibodies conjugated with the cytotoxins like ricin or radioactive isotopes could be used in the future to target the tumour vessels[31]. Endoglin molecule is overexpressed in only the tumour associated endothelial cells and using the antibodies against these may be the future tool to kill these tumour cells[32]. Recent literature however has shown improvement with chemotherapy[33,34].

CONCLUSION

This rare breast cancer is of vascular origin and is considered to be a highly malignant and a fatal form of the breast malignancy. Young, fertile and pregnant women are affected more often. One of our cases was an unmarried young girl who died of complications of an unusual site of metastasis. The patients who have been subjected to the breast preservation surgery, followed by irradiation,are at a higher risk to suffer from vascular tumours like haemangiosarcomas of the breast.One should have a high degree of suspicion, when breasts subjected to the conservative surgery with the adjuvant radiotherapy, present with the symptoms and signs of, irradiation dermatitis.

ACKNOWLEDGEMENT

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High Resolution Ultra Sonography In Primary Hyperparathyroidism Report of Two Cases

Feroze Shaheen, Manjeet Singh, Tariq Gojwari, Irfan Robbani, Riyaz Rasool, Hamid Hussain Banday

ABSTRACT

Besides surgical resection as a definitive mode of treatment for primary hyperparathyroidism, ultrasound guided ethanol / laser ablation of parathyroid adenomas is slowly gaining acceptance. Pre-operative localization of the pathological glands will go a long way in reducing operative time and complications and is indispensable in the later option. High resolution ultrasonography is a simple cheap and readily available modality for localization of pathological glands, and in negative or equivocal cases can be combined with scintigraphy for optimal results.

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With the widespread availability of auto-analyzer machines, hypercalceamia and primary hyperparathyroidism are now recognized to be much more common than previously recognized[1]. In patients with clinical & laboratory evidence of primary hyperparathyroidism, the treatment of choice is neck exploration and surgical excision. Since surgical treatment is definitive & highly successful, non-invasive imaging of a kind that would precisely localize the pathological gland/glands would be ideal. Invasive techniques especially those with radiation exposure like CT scan, Arteriography, Scintigraphy and venous sampling have to be used judiciously as some of them like arteriography would only add to the cost and time factor involved in surgical exploration and excision except in cases where previous neck exploration has failed. Some centers have in fact recommended the surgical policy of completion of surgery after one large and one normal gland are found. It is obvious that accurate pre-operative localization of parathyroid glands would eliminate bilateral dissection since correct side would always be explored first. No postoperative hypercalcaemia was reported in these patients[2]. Ultrasonography is considered by many as imaging investigation of choice[3] and has been reported to be a specific and sensitive test[4]. In patients with high surgical & anaesthetic risk, US guided percutaneous ethanol ablation of parathyroid tumors has proven useful. Some centers have even used US guided laser photocoagulation. Partial or complete long-term remission could be achieved in 70-8-% of patients using these non-operative techniques[5]. The need for ultrasound localization in such patients is obviously indispensable.

We present two cases with clinical and/or biochemical evidence of primary hyperparathyroidism who revealed pathological parathyroid glands on High Resolution Ultrasonography.

Case 1:

A 28 years old married female with vague complaints of bone pain, listlessness and malaise was referred by endocrinology department for evaluation of suspected thyroid enlargment. HRUS of neck revealed normal echogenicity of thyroid gland with well-defined capsule. Two hypoechoic rounded lesions were found posterior & inferior to the thyroid lobes with fatty cleavage plane separating from thyroid lobes (fig. A). a preliminary impression of parathyroid hyperlasia was made. Biochemical survey showed markedly elevated PTH, serum calcium and urinary calcium. Patients refused surgical exploration or FNAB.

Case 2:

A middle aged multiparous woman with clinical & biochemical evidence of primary hyperparathyroidism was referred for

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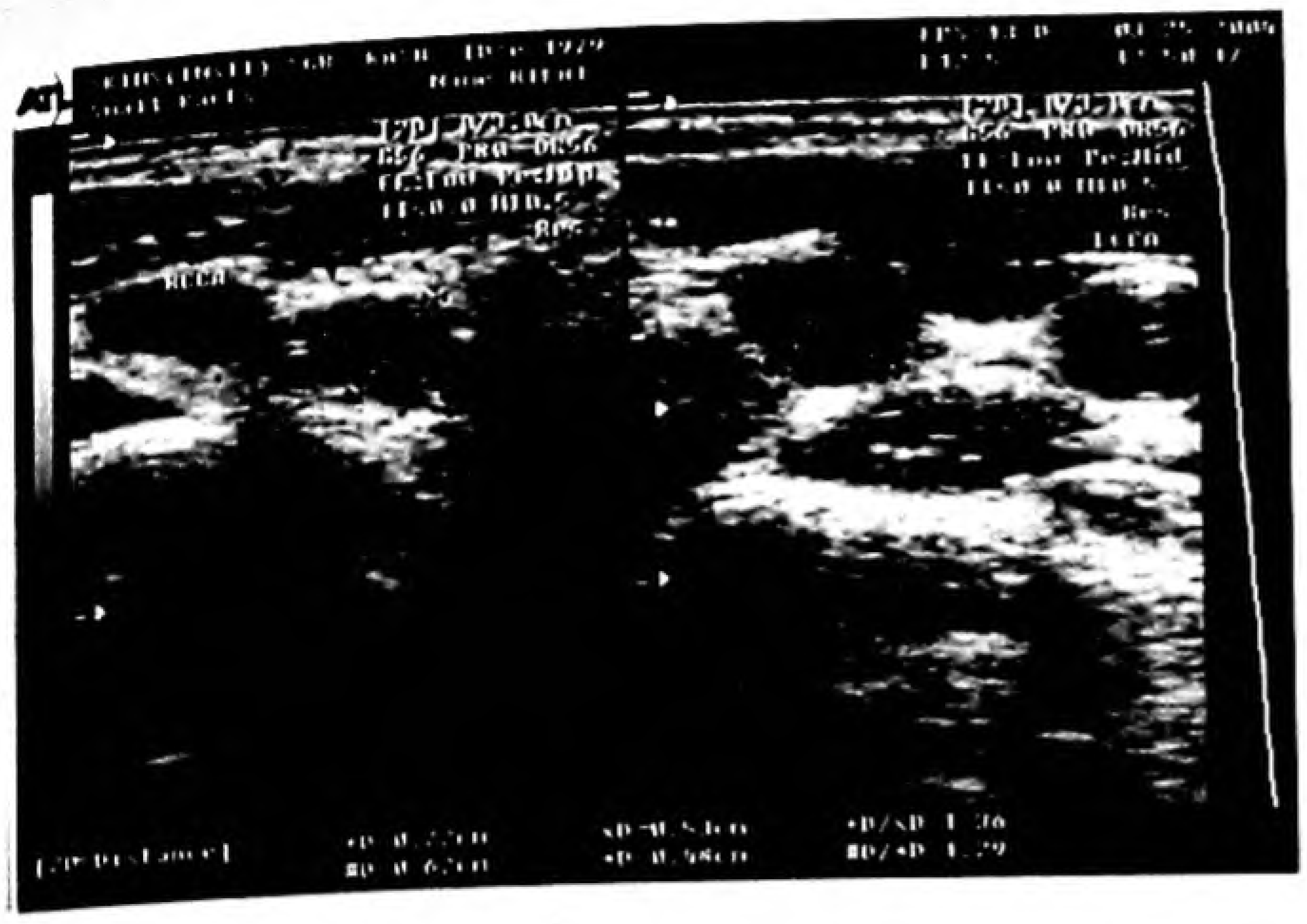
Key Words: *Hyperparathyroidism; High resolution Ultrasonography; Parathyroid adenoma; Scintigraphy*

Case I



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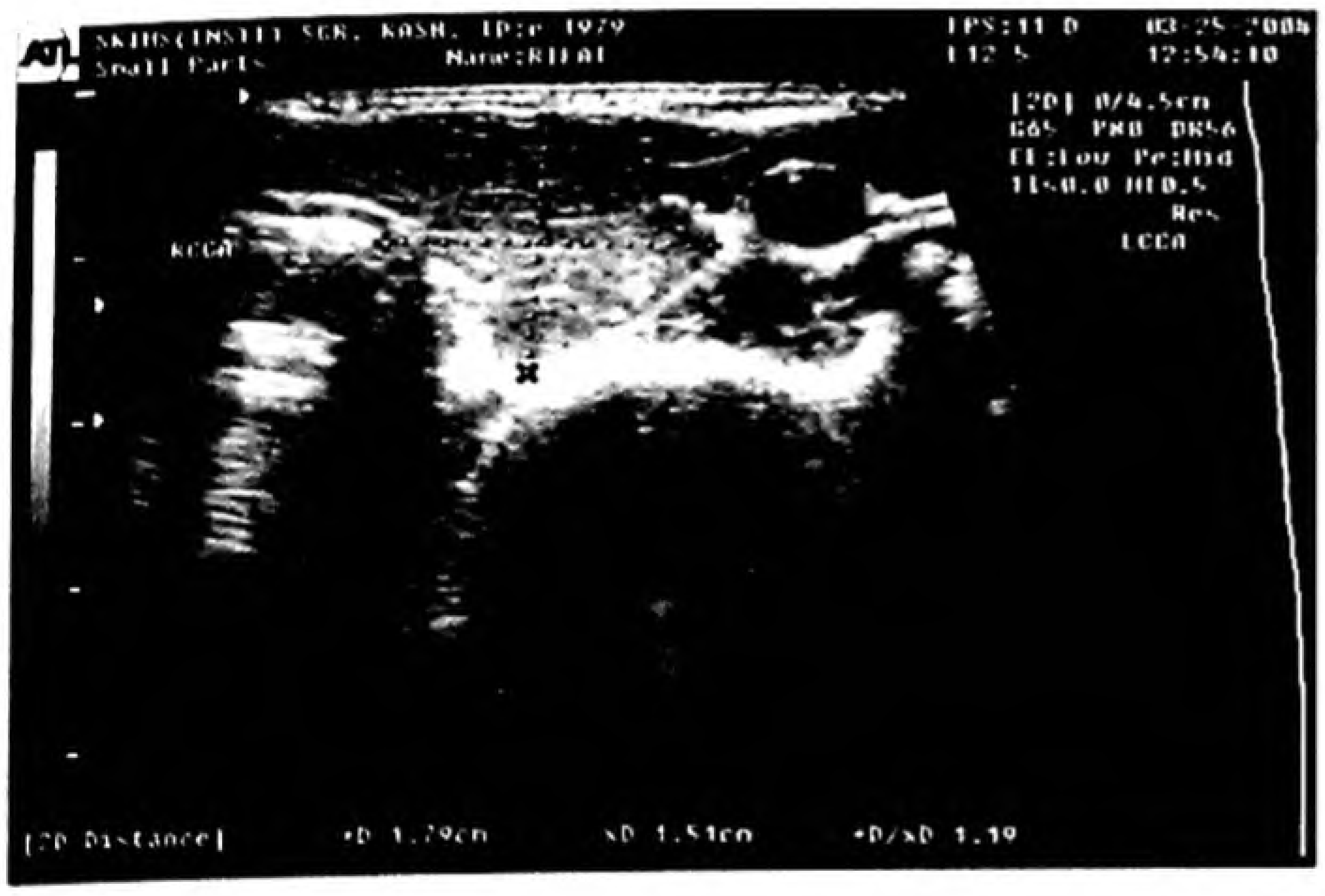

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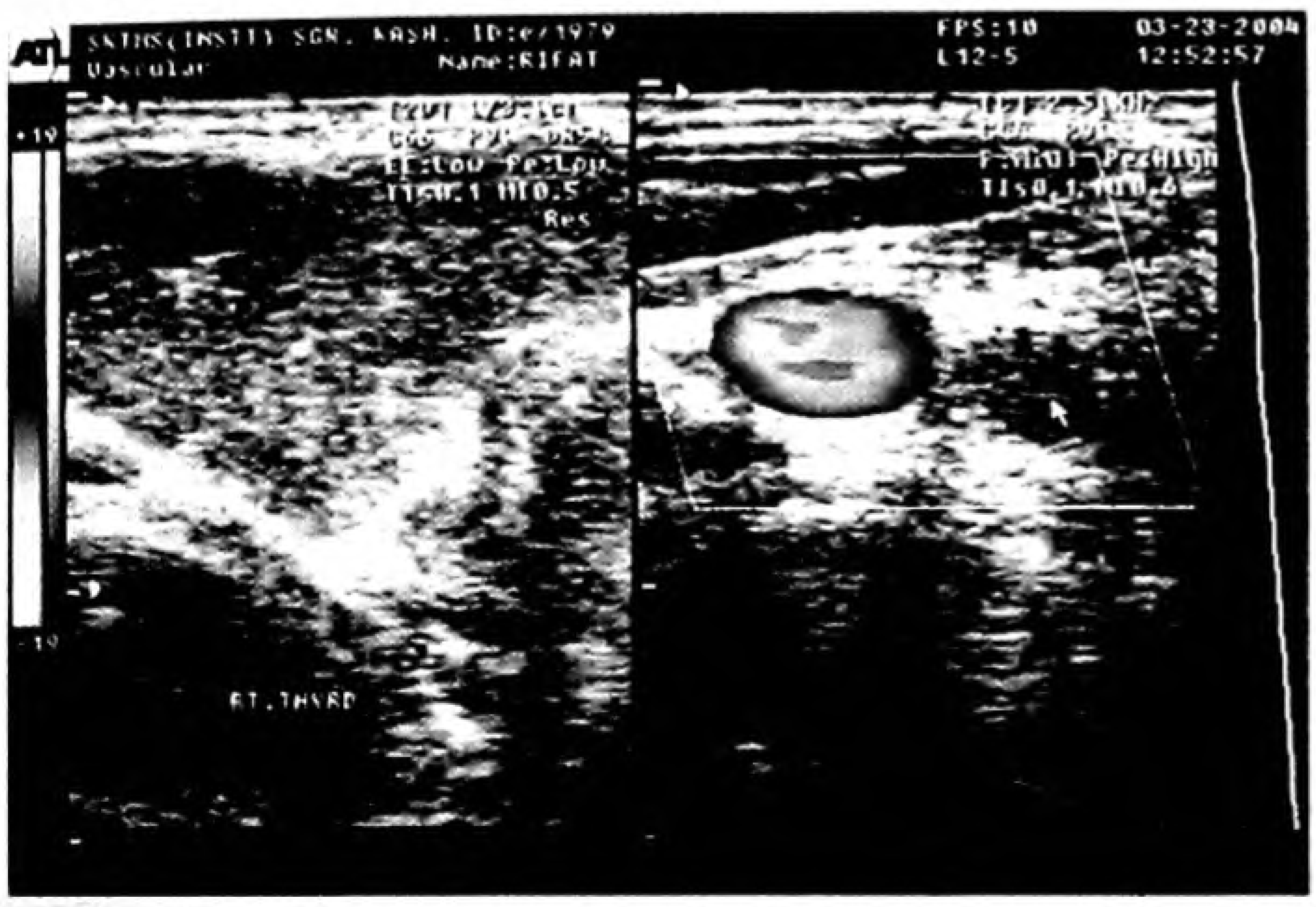

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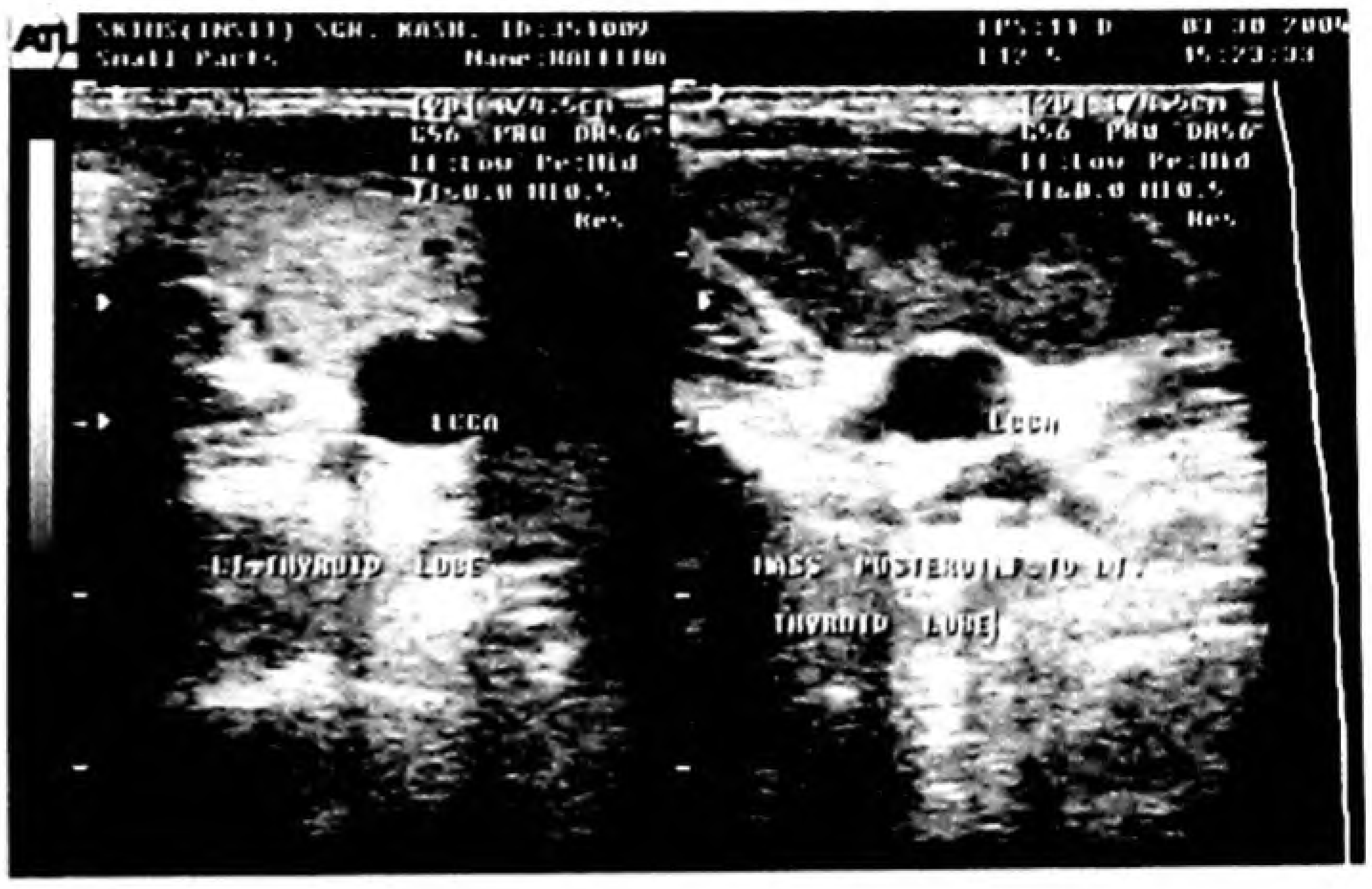
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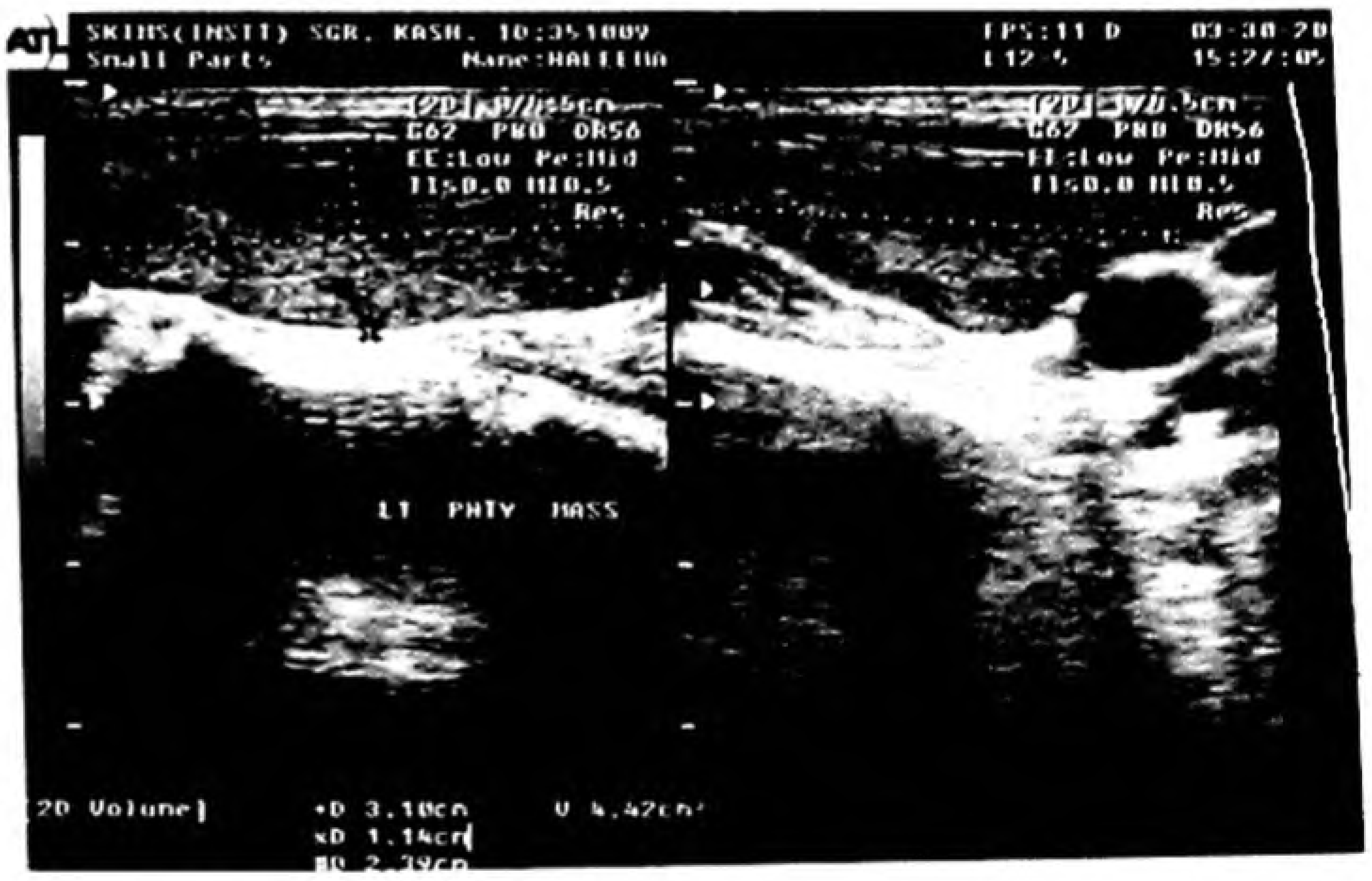
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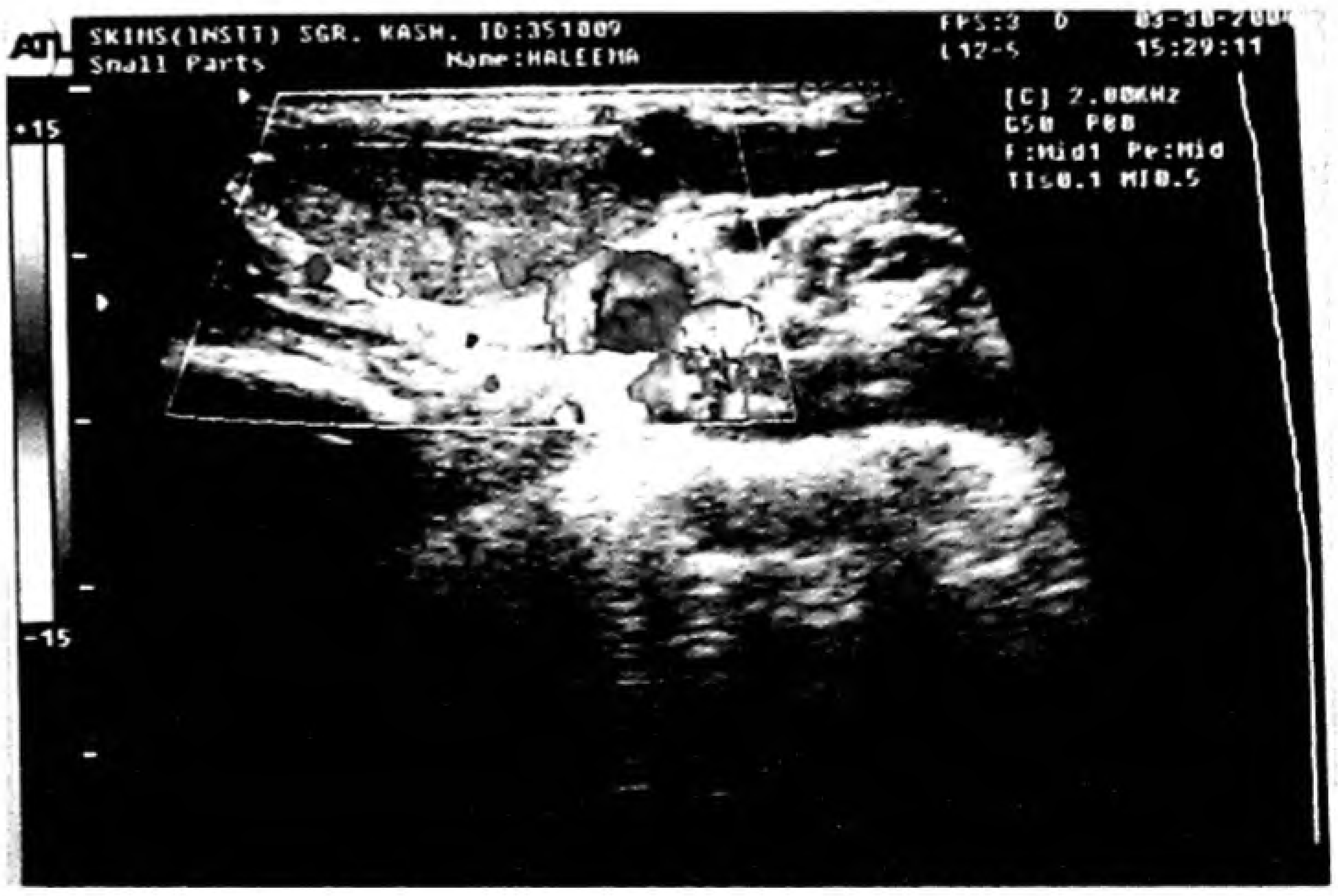

C

neck USG. HRUS of neck revealed a large parathyroid adenoma posterior and inferior to the right lobe of thyroid gland with a fatty plane separating it measuring 3.1 x 1.14 x 2.39 (fig. B). Patients underwent surgical excision. Histopathological examination revealed parathyroid adenoma.

Discussion

The imaging methods for parathyroid localization before surgery include Ultrasonography, CT Scan, and Radionuclide scanning and in selected cases arteriography and venous sampling. The sensitivity of Ultrasound for parathyroid adenoma localization in primary PHT ranges between 70-80%[5]. Sonography also permits reliable differentiation of parathyroid adenomas from other pathological structures like thyroid nodule or cervical lymph nodes[6]. In a comparison of Ultrasonography and 99m Technetium sestaimbi scintigraphy in the pre-operative evaluation of primary hyperparathyroidism, high resolution Ultrasonography revealed presence of a pathological parathyroid gland in 75 out of 77 cases (97.4%) whereas Tc 99m-MIBI scintigraphy revealed pathology in 74 out of 77 cases (96.1%). The two examinations combined detected pathological glands in 100% of cases[7]. However false negative results may be obtained with isotopes scanning if the pathological glands are small and false positive results can occur in patients with thyroid nodules. Although the procedure is minimally invasive but it does expose patients to radiation[8]. Attempts using computed tomography for parathyroid tumor localization were not particularly sensitive detecting 50-60% of tumors[8]. A major problem is streak artifacts from shoulder positioning which can, however, be overcome by employing a shoulder-positioning device. Some studies have claimed 80% sensitivity with CT[9,10].

It has been argued that since the success rate of parathyroid gland identification and removal can approach 95% in the hands of a good surgeon, pre-operative localization may not be necessary[10]. However pre-operative localization of parathyroid glands is useful:

- To identify one abnormal parathyroid gland allowing for unilateral neck exploration, thus reducing operative time and surgical complications.
- To localize parathyroid tumors in post-operative either persistent or recurrent HPT. The complication rate at re-operation is relatively high and the success rate decreased.
- In case of negative results with Ultrasound, to aid in differential diagnosis of hypercalcaemia[11].

Although surgery in experienced hands is very successful in primary hyperparathyroidism, several patients, particularly the elderly in whom the incidence of PHP appears to be as high as 0.2% and 0.1% in women and men respectively, could be reluctant to have an operation or a co-existent disease may constitute contraindication to anesthesia. Various medical approaches used in such patients range from agents inhibiting PTH secretion like propanolol to agents that protect bone against PTH stimulated bone resorption like WR-2721, all with little effect or with marked side effect precluding their use[12]. Since Ultrasonography is widely used for localization of abnormal parathyroid glands, its efficiency for curative percutaneous ethanol ablation of parathyroid adenomas is being widely recognized. In one study, USG guided ethanol injection resulted in successful treatment in 11 of 14 patients with parathyroid adenomas followed for a median of 39 months[13]. In another study of a case report of a surgically high-risk patient, successful ethanol ablation of a parathyroid adenoma was achieved with normalization of serum PTH & calcium levels and resolution of neuropsychiatric symptoms. The patients had relapse after four years, which was again treated with US-guided lased photocoagulation resulting in biochemical & clinical resolution[14].

Conclusion

With increasing acceptance of surgical policy of unilateral neck exploration and resection for primary hyperparathyroidism, high resolution USG has become sensitive, relatively specific, noninvasive investigation for parathyroid localization. In equivocal cases it can be combined with Tech. 99m sestambi scanning to ensure exact localization. Hitherto unexploited USG guided ablation of parathyroid glands using ethanol or laser photocoagulation has catapulted Ultrasonography to frontline position among the various options in diagnostic and therapeutic armamentarium.

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Short Communication

Role of Pterygium Excision In Pterygium Induced Astigmatism

Mohd Yousuf M.S

Pterygium is a common ocular surface disorder of the subconjuctival tissue characterised by fibrovacular growth encroaching upon the cornea in north Kashmir. Pterygium causes functional problems such as reduced visual acuity ,diplopia and problems fitting contact lenses .Reduced visual acuity in pterygium induced astigmatism has several mechanisms .These include a) pooling of the tear film at the leading edge of the pterygium and b)mechanical traction exerted by the pterygium on cornea .This abnormality has been measured by keratometry and refraction. In this study an attempt was made to assess the role of pterygium excison in pterygium induced astigmatism.

Fifty patients below fifty years of age with nasal primary pterygium were studied before and after surgery .The inclusion criteria was >1.5 D with the rule astigmatism as measured by refraction. Patients with pseudopterygium, recurrent pterygium, history of ocular diseases predisposing to ulceration or poor wond healing such as rheumatoid arthritis, dry eye ,acne rosacea or herpetic keratitis were not included in the study.

Each patient was thoroughly examined pre-operatively for snellens visual acuity, S.L.E, manifest refraction,fundus examination and keratometry and one month post operatively. Pterygium was graded depending on the extend of corneal involvement . Grade I-Crossing limbus, Grade II midway between limbus and pupil , Grade III reaching upto papillary margin, Grade IV crossing pupilary margin.

Written informed consent was obtained from each patient. All eyes were given peribulbar anaesthesia.The surgical procedure was as follows :

After cleaning the eye with Betadine paint and drapping the eye, eye lids were retracted by a self retaining eye lid retractor.The corneal eptithelium 2mm anterior of the head was scaraped off with a sharp blade chip in blade breaker and holder and the head of the pterygium separated from cornea and 4-5 mm conjuctiva including body of pterygium excised .Light cautry was applied to bleeders for haemostasis .A sterial sponge(5 x 5 mm)soaked in freshly prepard 0.02%of mitomycin-C was applied over the corneosclera and resected pterygium site for 5 minutes .The sponge was removed after 5 minutes and the eye was irrigated with balanced salt solution.At the end of the surgery, eyes of all the patients were patched after applying norfloxin 0.3% eye ointment .Patients were asked to return on the first post-operative day and the eye dressings were opened. Thereafter ciprofloxin 0.3 % and dexamethasone 0.1 % eye drops three times a day and artificial tears four times a day for two weeks were used. All the patients were followed up on day 1,6,15 and 28 and there after biweekly for four months.

This study included 50 eyes of primary nasal pterygia. 2 eyes(4%)had grade I pterygium, 23 eyes (46%) had grade II pterygium,16 eyes (32%)had grade III pterygium and the rest 10 eyes(20%)had grade IV pterygium(tableA)

Table-A Grade of pterygia and astigmatism

Grade of pterygium	No of patients (%)	Pre-operative mean astigmatism ± S D	Post-operative mean astigmatism ± S D
I	2(4%)	1.76±0.52D	0.92±0.63D
II	23(46%)	2.46 ±0.74 D	1.44±1.23D
III	16(32%)	3.57±1.48 D	1.46±1.19D
IV	10(20%)	5.68±2.23 D	3.12±1.02D

Key Words: *Pterygium, Pterygium Excision, Astigmatism.*

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Table-B Astigmatism following pterygium excision

	Pre-operative mean ± S D	Post-operative mean ± S D
Refractive astigmatism	4.32±1.88D	2.11±1.96D

The amount of astigmatism varied with the grade of pterygium. Preoperative mean astigmatism was 1.76±0.52 D in grade I pterygium, 2.46±0.74D was noticed in grade II. Pre-operative mean astigmatism was 3.57±1.48D and 5.68±2.23 in grade III and IV respectively.

7 patients who had recurrence of pterygium had poor results. These include 3 from grade II ,2 each from Grade III and IV pterygium.

The preoperative refractive astigmatism was 4.32±1.88 D which got reduced to 2.11±1.96 D

Table-C Visual acuity following pterygium excision

	Pre-operative mean ± S D	Post-operative mean ± S D
BCVA	0.56 ±0.42	0.69±0.40

BCVA Best corrected visual acuity

Visual acuity remained same in 30 eyes (60%) and in rest 20 eyes(40%) it improved.

Discussion.

The astigmatism which is induced by pterygium is with the rule astigmatism[3,4] and in our study only with the rule astigmatism were included because most of the patients had with the rule pterygium induced astigmatism. The astigmatism appears to be due to an alteration in tear film caused by the lesion. As the head of the pterygium approaches the apex of cornea, a tear meniscus develops between the apex of the cornea and the elevated pterygium, causing an apparent flattening of normal corneal curvature.

Lin etal 9 have reported that pterygium begins to induce significant degrees of astigmatism once it reaches upto 45% from the limbus to the visual axis or within 3.2 mm of visual axis.Such an observation was made in the present study.

In this study bare sclera excision with intra operative mitomycin-C was used to reduce the recurrence rate of pterygium and also minimize the side effects of post-operative excessive use of mitomycin-C[2,7,11].

The astigmatism decreased significantly following pterygium excision.The mean pre operative refractive astigmatism decreased from 4.32±1.88 D to 2.11±1.96 D These results correlate the results of Sejal Mahashwari.[12]

Mean visual improvement was noted from 0.56±0.40 to 0.69±0.40 which are similar to results of Sejel Mahashwari.The improvement in vision may be due to two causes a)reduction in astigmatism and b) removal of pterygium from visual axis as in grade IV pterygium.

The present study verifies that as the size of the pterygium increases, the amount of pterygium induced astigmatism also increases in direct proportion . Successful pterygium surgery reduces the pterygium induced refractive astigmatismn and also improves vision.

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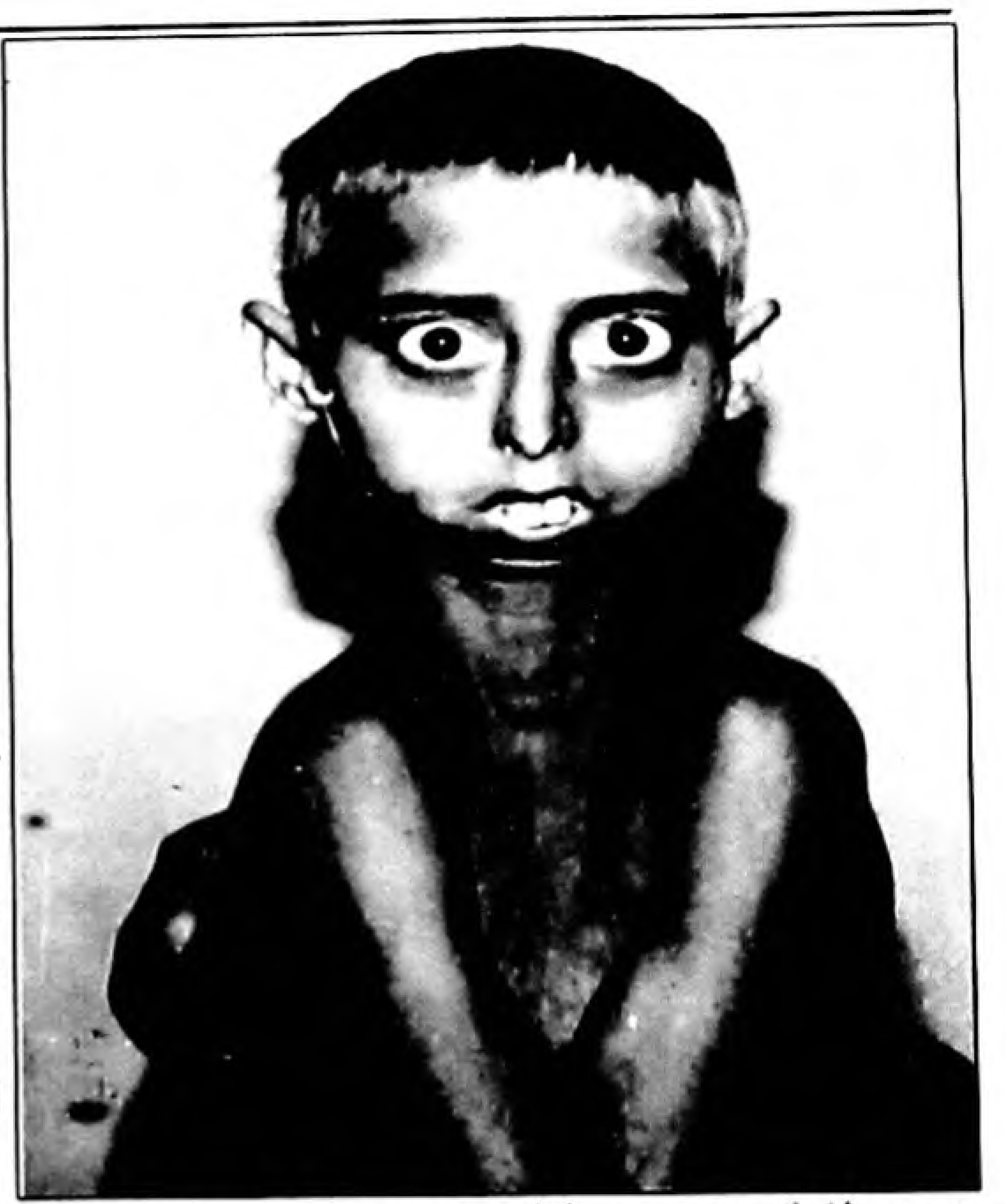
Progeria – Too Young To Be Old



A 14 year old boy presented with failure to thrive with absent adolescence growth spurt, stiffness in fingers and joints, and pain, cooling and numbness of hands and feet.

On clinical examination the boy was short statured for his age, there was symmetric growth retardation, premature graying of his hair, subcutaneous fat was lost with dry skin, he had exopthalmos microganathia, thinned lips, hooked nose, protruding ears, abnormal dentation & loss of eyelashes. Limbs were thin with venous prominence. Hands & feet had prominent stiff joints. X-ray chest showed dystrophic clavicle. Patient had raised cholesterol & serum lipoproteins but there was no IDDM. The clinical diagnosis of Progeria was made.

Progeria is an extremely rare disorder of accelerated ageing with a reported incidence of 1 per 8 million. Not more than 100 cases have been reported so far. The affected children present with severe failure to thrive, and do not become sexually mature to reproduce[1]. Each child with progeria most likely represents a new sporadic dominant mutation, the molecular basis of such mutation being unknown. Diagnosis of progeria is usually made by the striking clinical features. Children with progeria are usually normal in early infancy, but progeria infantum has been associated with scleroderma - like erosion and acro-osteolysis[2]. There is profound growth failure during the first year of life. There is loss of hair or graying of hair, loss of subcutaneous fat, stiffness of joints, abnormal short stature, beak shaped nose, shallow orbits with exopthalomos, hypoplastic fascial bone (microganathia) protruding ears, delayed & abnormal dentition and thin lips, pyriform thorax, thin limbs, acro-osteolysis of terminal phalanges, coxa valga.

Features of premature senescence, bird like appearance, premature baldness, hyper-pigmentation, voice alteration, diffuse arteriosclerosis, bilateral cataract osteoporosis is also seen . Scleroderma like skin changes are also noted. Chest is narrow with slender ribs and progressive resorption with fibrous replacement of outer portion of thinned clavicles is a hallmark[3], coronary artery and heart valve calcifications are also seen. Majority of the above mentioned clinical features were seen in our patient. Laboratory finds of progeria include IDDM, abnormalities of collagen, increased metabolic rate, abnormal serum lipoproteins and elevated cholesterol urinary hyaluranic acid[4].

Atherosclerosis & its complications are the main causes of death in a progeric person. The most common complications are myocardial infarction, cerebral infarction, vascular aneurysms, vascular occlusions and peripheral vascular calcifications because of premature atherosclerosis.

Patients die in their 30's due to atherosclerosis. There is no specific treatment for this disease. Progeria being a rare disorder, much about this disease has not been published in the international journals leading to the dearth of text and pathogenesis of this syndrome.

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Misoprostol use in Obstetrics & Gynaecology

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Introduction

Misoprostol available in tablet form is closely related to other prostaglandins used in obstetric practice such as dinoprostone (PGE_2), carboprost (15 methyl-PGF_2), gemeprost (PGE_1). Misoprostol was developed and marketed with US FDA approval for sole indication of prevention of peptic ulcer disease caused by prostaglandin synthetase inhibitors (NSAIDS) but, with its potent uterotonic and cervical ripening activity, misoprostol has been widely used in the management of gynaecological and obstetrical problems. In United States marketed as cytotec with 100 and 200 gm tablets. In India available in same strength.

Characteristics:

Easily stored, shelf life 3 yrs. In comparison with other prostaglandins, minimal effect on cardiovascular and bronchial tree muscle (can be safely used in hypertensive patients and asthmatics). Needs no refrigeration.

Modes of Administration:

Oral, vaginal, intracervical, intrauterine, sublingual, buccal. Mainly oral and vaginal routes are being used liberally.

Pharmocology and Pharmokokinetics:

Naturally occurring PGE_1 is not orally sustainable as it is unstable in acid media, also not suitable for parental use because of its rapid degradation in the blood. Synthetic PGE_1 analog, has been produced by bringing alternation in chemical structure of this naturally occurring compound, there by making it orally stable and useful. Its chemical formula is $C_{22}H_{38}O_5$.

Following oral administration drug is absorbed quickly, converted in its active form misoprostol acid. Metabolite reaches its peak in plasma by approximately 30 minutes and declines (half life) 21 minutes there after. Maximum plasma concentration of misoprostol acid diminishes when drug is taken with

Vaginal administration has advantages of reducing gastrointestinal side effects, with profound effect on reproductive tract, with more success and less failure rates. After administration in posterior fornix, plasma concentration reaches peak by 1 to 2 hours and then slowly declines unlike oral absorption. Slower increase and lower peak plasma concentration of misoprostol is noted in vaginal application when compared to oral application. Intrauterine pressure and uterine contraction exerted by the drug differs when applied by different routes. Maximum uterine contractility was seen significantly higher after vaginal administration. Vaginal dosing can take place with longer intervals than oral dosing for similar desired uterine effect.

Applications of misoprostol in obstetrics and gynaecology

Obstetrics

- Cervical ripening and labor induction: more than 28 weeks to term (in India) and 24 weeks to term (in USA, UK other European countries).
- Labor induction for past dates (post-term) or post-dated pregnancy.
- Labor induction in cases of 2nd trimester termination in post-cesarean pregnancies.
- Labor induction in cases of second and early third trimester termination of pregnancies associated with fetal anomalies.
- Labor induction in cases of intrauterine fetal death.
- Management of spontaneous abortion.
- Management of missed abortion.
- Medical abortion: Alone or in combination with mifepristone (RU-486)/methotrexate.
- Management of cervical pregnancy.
- Cervical priming prior to surgical abortion: Trimester I and II.
- Management of uterine atony

leading to postpartum hemorrhage.

Gynecology

- Cervical ripening prior to dilatation and curettage.
- Cervical ripening prior to hysteroscopy.

Safety of Misoprostol

The common side effects associated with misoprostol is diarrhoea, which is a natural response to prostoglandins by intestinal smooth muscles. Diarrhoea is seen in one-tenth of patients, its mild and self limiting, resolving within a few days despite continued therapy. Misoprostol is metabolised by fatty acid oxidizing systems in organs of the body. Its metabolism and plasma levels are therefore unlikely to be affected in renal dysfunction or hepatic derrangement, so safely adminstered to patients with hepatic or renal impairment. It causes birth defects in continuing pregnancy with unsuccessful attempt to induce abortion. Defects like moebius syndrome, characterised by equinovarus, terminal limb defects, cranial nerve defects and facial nerve paralysis are seen. It causes rabydomyolysis, complex acid base balance, uterine hypertonicity leading to uterine rupture and fetal distress, rarely causing hyperthermia. Overdose clinically manifests by sedation, tremor, convulsion, dyspnoea, abdomenal pain, palpitation, hypotension and bradycardia.

Misoprostol in Ist trimester termination of pregnancy

It has thrown challenge to universal surgical approach. Since 1990's more than 3 million women worldwide have had medical abortion. Practitioners acknowledge that this service presents new challenges, including additional counselling, more patient visits and increased patient calls. Success rates seen as 96% complete abortion rate for gestations less than 49 days. 91% between 50-56 days. 85% for gestation more than 57 days.

Standard Regimen:

Oral route 200 mg or 400 mg mifeprost RU 486, after 48 hours 200 gm misoprost as single oral dose. A follow up visit at day 15th is advised to confirm either clinically or by sonographically that complete pregnancy expulsion has occurred. An enlarged or tender uterus may suggest of incomplete abortion, which needs to be completed surgically.

- Variation to standard regimen is that 50mg of mifeprostone had been used in trials but risk of failure with lower dose was calculated to be 1.6 times the higher dose. Certain trial have confirmed the efficacy of 200 mg of mifeprostone with misoprostol.
- Home self-administration of misoprostol is safe, effective and acceptable to woman. Moistening of tablet with normal saline before insertion increases its efficacy.
- Using misoprostol alone: In early abortions 800 to 1000 gm 24 to 48 hours apart have been used with success rate between 85 to 92%.
- Termination after 9 weeks: A combined regime of mifeprotone and misoprostol resulted in complete abortion in 94-95% woman between 9 to 13 weeks gestation.

Adverse effects & Complications (2-10%)

Vaginal bleeding, failure rate and ongoing pregnancy, incomplete abortion, nausea, headache, vomiting, diarrhoea, dizziness.

Comparing medical to surgical termination

Advantages of medical abortion is that it is natural, private, relatively non-invasive. The disadvantages include uncertainty of completion, extra visits at clinics, may need surgical backup if medical termination fails. Waiting period 2 to 3 days for abortion to be completed and prolonged bleeding (10 to 14 days). However, anemic patients are not appropriate for medical termination. Failure rate 2 to 10%. Most of the failures could not be true drug failure but surgical interventions not really necessary.

Surgical termination is invasive procedure, more time lost in abortion, anaesthetic risk besides those of surgery.

Misoprostol in IInd trimester termination of pregnancy

In West IInd trimester termination of pregnancy is around 10%.

Major indication of termination of pregnancy are:

- Severe maternal medical problems.
- Loss of fetal life.
- Major congenital abnormalities of fetus.
- Unwanted pregnancy.

Regimens followed are same as in 1st trimester of pregnancy, but mifeprostone given orally 100 mg for 2 days optimizes the outcome of vaginal misoprostol for mid trimester termination.

The combination of oral mifeprost 200 mg single dose followed by vaginal and orally administered misoprostol provides a non-invasive and effective regimen for IInd trimester termination of pregnancy.

Misoprostol alone 400 to 600 g vaginally administered every 12 hourly is also very effective. Success is 90% within 48 hours. Vaginal misoprostol is more effective than oral administration as judged by induction delivery interval. The supremacy of vaginal route is seen even after pretreatment with mifeprostone.

Gameprost verses Misoprostol

Misoprostol is inexpensive, stored at room temperature, available freely, atleast equally or even more effective with fewer side effects. In contrast gameprost is available only as vaginal pessary, is expensive, thermolabile and requires refrigeration.

The introduction of prostoglandin analogues (gemeprost and misoprostol) and mifeprost has shown great promise in optimising outcome of IInd trimester abortion. The combination of misoprostol or gemeprost with mifeprostone leads to abortion within 24 hours in over 90% of woman with mean induction to abortion interval of about 6 hours.

Cervical softening before surgical termination

Cervical ripening is the softening, effacement and gradual dilatation of cervix. Cervical ripening before evacuation reduces risk of cervical injury and uterine perforation. Misoprostol studied extensively as cervical ripening agent before surgical termination of pregnancy. At present it is the effective, safe, easy to store, easily available and least expensive substance. Its wider use reduces the complications and abortion related deaths. Before vacuum aspiration appears to be most effective. Its pretreatment decreases pain, and analgesia is not routinely used. Vaginally misoprost 400 g 3-4 hourly given before evacuation or vacuum aspiration.

Misoprostol in medical management of missed abortion

Selection of patients: Duration of pregnancy preferably not more than 13 weeks. Patient should be hemodynamically stable with hemoglobin of more than 10gm/dl. Patient should be afebrile, with cervical os closed with or without vaginal bleeding. Informed consent of the patient in a written proforma. 400-600g misoprostol soaked in saline and placed in posterior fornix is effective in most patients with missed abortion. The dose is repeated 4 hourly and upto 4 doses can be given. 800 g are repeated vaginally if products not expelled in 12 hours. Can be used in patients of previous caesarian section also, because thick lower uterine segment in early months of pregnancy is not affected by uterotonic effect, however cases need to be carefully selected and monitored. Examination of expelled conceptus is a must. In majority post-expulsion evacuation is not required. Alternately ultrasonographic evacuation of uterus is important under antibiotic coverage.

The drug dose interval may vary and should be assessed on individual case depending on gestational period and response.

Misoprostol in incomplete abortion

Different regimens used:

- Vaginal misoprost 800 g give success rate of complete abortion in 82%.
- Sequential oral doses of misoprost 200 g with success rate of 85%.
- Intravaginal 400 g misoprost on 1st, 3rd and 5th day.
- Intravaginal 200 g misoprost, then oral 200 g misoprost taken 6 hourly for 5 days.

Problems of medical management of incomplete abortion with misoprostol:

- Failure of expulsion of products of conception may lead to prolong bleeding and need surgical exploration.
- Heavy bleeding in patients with low general condition.

The average time taken by misoprost for complete evacuation in successful cases is 12-13 hours.

For Cervical Ripening and Induction of labor

Misoprost used orally, vaginally, sublingually for cervical ripening and labor induction.

Vaginal misoprostol 25 g 3 to 4 hourly for labor induction achieves 30% more vaginal deliveries within 24 hours with less need for augmentation with oxytocin. Dose higher than this around 50g leads to hyper stimulation of uterus and muconeum staining of amniotic fluid.

With oral misoprostol for induction, oxytocin was more often required and used for augmentation and delivery took few hours (3 to 4 hours) longer. So intravaginal misoprost preferred to oral route.

Benefits:

- Higher rate of vaginal delivery within 24 hours of application.
- Lower rate of cesarean delivery.
- Reduced need for augumentation of labor with oxytocin.
- Low cost of drug.
- No need for refrigeration.

Indications:

- Post-term pregnancy, hypertensive disorders.
- Fetal deaths, fetal growth restrictions.
- Diabetes mellitus, prelabour rupture of membrane both term and pre-term.

Major concerns:

- **Hyper stimulation:** Tachysystole is defined as 6 or more uterine contractions in 10 minutes for two consecutive 10 minutes period. Management depends on severity of fetal heart abnormalities and immediate prospects for vaginal delivery, and it includes changes of maternal position, removal of remaining portion of misoprost tablet from vagina, use of tocolytics and delivery of fetus if problem persists.
- Muconeum staining of amniotic fluid is due to fetal response to uterine hyper-stimulation or direct effect on fetal gastrointestinal tract. Fresh and thick muconeum demands attention.
- **Uterine rupture:** Rupture uterus with or without previous scar, several reports indicating increase chances of scar rupture. Its use in previous caesarian sections is a contentious issue.

Dosage and routes of administration for induction of labor

Vaginally :

- 25 g 4 hourly with maximum dose 150 to 200 g.
- 50 g 6 hourly with maximum dose 200-400 g.
- 100 g 12 hourly with maximum dose 200 g.

Orally and sublingually:

- 50g 4 hourly with maximum dose 250 g.
- Misoprostol available as 100 g, 200 g tablets. Vaginal route preferred to oral route.
- Misoprostol studied in Indian context against dinoprostone.
- Misoprost used intravaginally 50 g 4 hourly for maximum of 4 doses has more vaginal deliveries (70% to 96%) compared to dinoprostone group (40% to 84%)

Misoprostol in intrauterine fetal death

Previously oxytocin alone, or PGE^2 (dinoprostone) or PGE^2 and Oxytocin combination was very much used in IUFD.

Now misoprostol is effectively used in cervical ripening and induction of labor, ideally suited for intrauterine fetal deaths in third trimester, as hyperstimulation of uterus is of no concern in dead fetus except in case of previous uterine scar. Success rate of 100% is seen with dose of 100g vaginal misoprost given every 12 hourly. In second trimester or early third trimester fetal deaths, higher dose of 200g vaginal misoprostol is given every 12 hourly. At term IUFD 50g / 12 hourly is adequate for induction of labor.

Drug has been used in 7 randomized controlled trails in cases of postpartum hemorrhage, but other uterotonics e.g, oxytocin were also required with it. It needs to be given in increasing doses 1000g which can cause shivering and hyperthermia. With doses as high as 600g high incidence of shivering (60%) is reported in 2 studies.

WHO completed largest ever study of misoprost in pregnancy, comparing misoprostol and oxytocin, with 600g of misoprostol after delivery showed a relatively higher rate of blood loss of 1000 ml or more (4 verses 3 percent), and required additional uterotonics and had higher incidence of shivering and elevated temperature. Concluding that when injectable oxytocin is available, it is preferred drug to prevent postpartum hemorrhage.

Misoprostol in Gynaecological procedures

In randomized trials 200mg of vaginal misoprost before diagnostic or operative hysteroscopy reduced need for cervical dilatation. Controlled trials have shown the benefits of 400 mg of misoprost given 12 and 24 hours before operative hysteroscopy in pre and post menopausal woman. Can be used 200 g vaginally few hours before intrauterine instrumentation e.g, foreign body removal. Its use before IUI and endometrial biopsy is still controversial.

Concluding

Interestingly on September 23rd 2000, US-FDA announced approval of mifepristone for termination of pregnancy less than 49 days gestation. Use of 200g misoprost, 2 days following intake of mifepristone.

Medical termination of pregnancy should be preferred till 6 to 7 weeks of gestation. Failure rate incidence with medical termination is 2-5%. Suction evacuation better avoided below 6 weeks, as suction termination is 3 times as likely to fail due to failure to remove gestational sac, than those performed at 7 to 12 weeks.

Comparison	
prostaglandin E1 (Misoprost)	**Prostaglandin E2 (Dinoprostone)**
Approved by FDA upto 49 days	Approved at any gestational age.
Cheaper	Costly
No storage needed	Heat labile, needs refrigeration
Can be used in absent membranes in posterior fornix	
In a study of 50 woman who presented for labor induction 25 woman receiving misoprost in (group A)	25 woman receiving dinoprostone (group B)
	32% in group B required 2nd dose of medication.
10 required oxytocin to reach active phase of labor.	16 required oxytocin.
Induction delivery time was shorter.	Longer induction delivery time.
10 hours	13 hours.
Successful induction seen in 100%	92%.
More vaginal deliveries.	Caesarian rate higher.

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Effect of Ispaghula Husk, Guargum and Acarbose on Post-prandial Blood Glucose Concentration In Healthy Volunteers

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ABSTRACT

The aim of this study was to evaluate acute effect of Ispaghula husk on postprandial blood glucose (PBG) concentration and compare it with guar gum and acarbose in the same healthy subjects under same experimental conditions.

Blood glucose samples of 10 healthy volunteers were taken after an overnight fast and 2 hrs after breakfast with and without Ispaghula husk, guar gum and acarbose on four mornings separated by at least 2 weeks. The study was double- blind and planned according to a randomized cross- over design. The breakfast was kept same in quality and quantity on each morning.

In comparison to control, PBG concentration were reduced by 52.5% (P=0.0005) with Ispaghula husk, 2.1% (non significant) with guar gum and no change was observed with acarbose. Diarrhoea and abdominal pain were reported in 20% cases each with Ispaghula husk and guar gum. Fullness of abdomen and flatulence was observed in 10% cases with acarbose.

Ispaghula husk is a cheap and more effective in reducing PBG concentration than guar gum and acarbose on single dose administration with comparable side effects. Administration of Ispaghula husk may be beneficial in patients with diabetes mellitus and postprandial hyperglycemia. It is easily acceptable and affordable in Indian context. Longer trials are further needed in diabetic patients to arrive at some definite conclusion.

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Introduction

The role of Ispaghula husk in the management of Diabetes mellitus (DM) is under investigational phase. The various studies have reported that long term use of Ispaghula husk in DM produces beneficial effects[1,2,3]. Very few studies have been conducted to confirm the acute effect of Ispaghula husk on PBG concentration and that too in Western population[4]. The present study was conducted to confirm acute effect of Ispaghula husk on PBG concentration and compare it with guar gum and acarbose in Indian population.

Material and Method

Subjects: 10 healthy volunteers which include postgraduates and other willing Persons; 6 males and 4 females; aged 25 to 35 years with normal body mass indices, FBG <100 mg% participated in this study. The written consent was taken from all the volunteers participating in this study. The study was conducted at Department of Pharmacology, Govt. Medical College, Amritsar, Punjab (India).

Design

Ispaghula husk 3.5 gm, guar gum 5 gm and acarbose 50 mg were dissolved in 200 ml of water and administered to subjects according to double- blind, randomized cross- over design. The study was completed on four different mornings separated each by at least two weeks with and without investigational agents. PBG concentration of subjects without administration of investigational agent served as a control. The blood glucose samples of 10 healthy subjects were taken after an overnight fast and 2 hours after breakfast. The breakfast was kept same both in quality and quantity on each morning. Blood glucose estimation was done by glucose oxidase method[5]. The results were statistically analyzed by using student's t- test.

Results

A mean rise from FBG concentration (mg %) of 28±11.09 was obtained 2 hours after breakfast without administration of any investigational agent. With Ispaghula husk, this rise was *13.3±13.02*, with Guargum *27.4±5.58* and with acarbose *28.4 ± 5.52*.

Diarrhea and abdominal pain were reported in 2 subjects each with Ispaghula husk and Guargum. Fullness of abdomen and flatulence were

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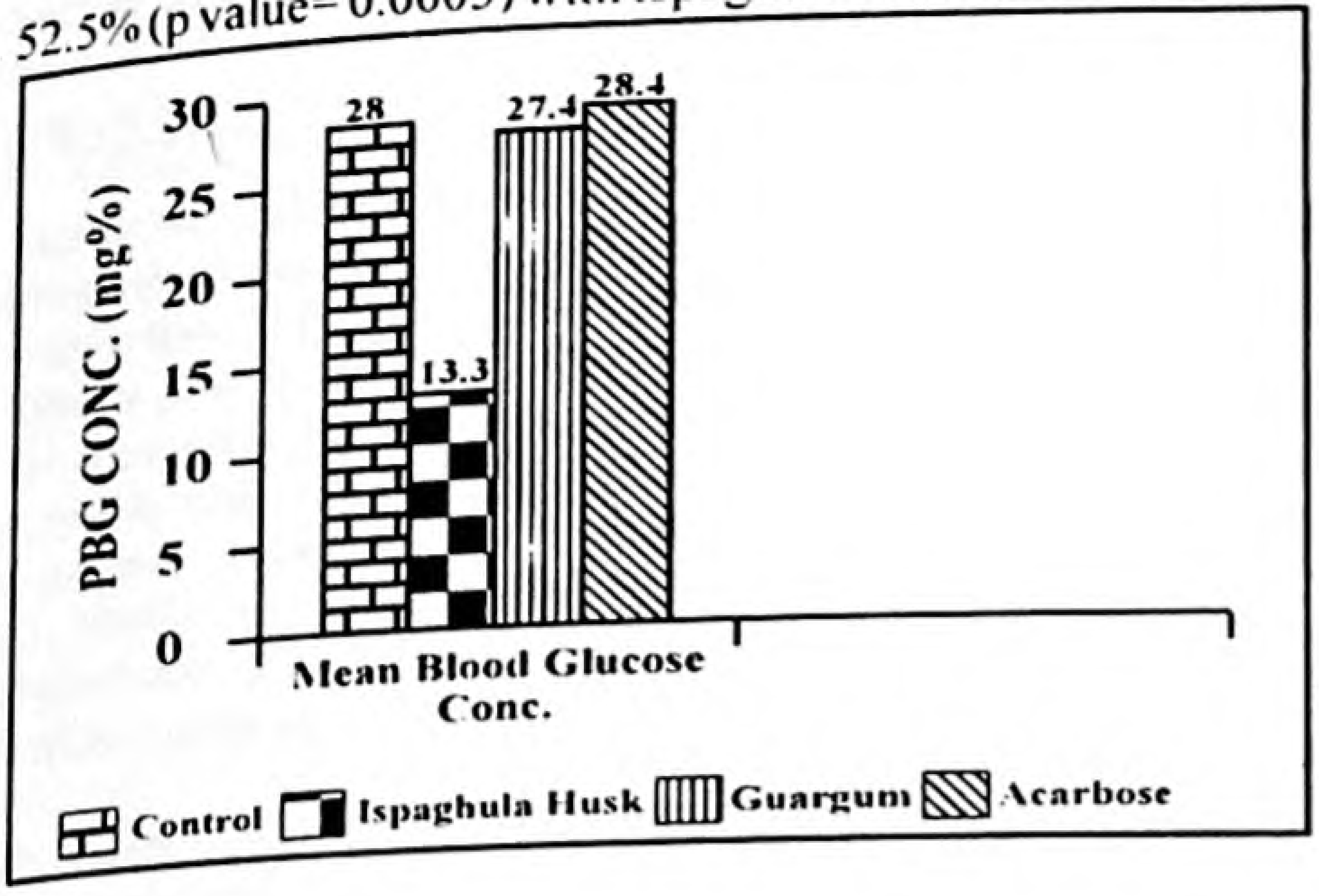
observed in one subject with acarbose.

DISCUSSION:

The present study, with a fall in PBG concentration by 52.5% (p value= 0.0005) with Ispaghula husk and 2.1 %(non significant) with guar gum in comparison to control has confirmed the results observed by Sierra et al[4]. 50 mg of acarbose used in present study has not produced any effect on PBG concentration in respect to control. In literature, significant reduction in PBG concentrations with 200 mg of acarbose in diabetic patients has been reported[6]. such a high dose can not be used in healthy subjects. The use of Ispaghula husk has been recommended in patients of type 2 DM and the 'second meal' effect of Ispaghula husk has also been reported[7]. Acarbose and guar gum with reported beneficial effects in diabetic patients on long term use have failed to show any effect on PBG concentration in present study. Present study has demonstrated acute effect of Ispaghula husk on PBG concentration. Viscous solution of Ispaghula husk in intestine may prevent passage of glucose in blood, thereby preventing rise in PBG concentration. Thus, administration of Ispaghula husk may be useful in patients of DM and Post Prandial hyperglycemia.



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Biomedicine: Stem Cells Come of Age

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Stem cells are one of the most fascinating areas of biology today. But like many expanding fields of scientific inquiry, research on stem cells raises scientific questions are rapidly as it generates new discoveries. A stem cell is a primitive type of cell that can be coaxed into developing into most of the 220 types of cells found in the human body (e.g. blood cells, heart cells, brain cells, etc). Some researchers regard them as offering the greatest potential for the alleviation of human suffering since the development of antibiotics. Over 100 million Americans suffer from diseases that may eventually be treated more effectively with stem cells or even cured. These include heart disease, diabetes, and certain types of cancer.

Stem cells can be extracted from very young human embryos typically from surplus frozen embryos left over from in vitro fertilization procedures at fertility clinics. There are currently about 100,000 such embryos. However, a minority of pro-lifers object to the use of embryos. They feel that a few-days-old embryo is a human person. Extracting its stem cells kills the embryo an act that they consider murder. Stem cells can now be grown in the laboratory, so (in a pinch) much further research can be done using existing stem cells; no further harvesting needs to be made from embryos. Stem cels can also be extracted from adult tissue, without harm to the subject. Unfortunately, they are difficult to remove, are severely limited in quantity, and appear to be limited in usefulness.

Stem cells play a central role in the normal growth and development of animals and humans. Normal growth and development, including the maintenance of tissues and organs in the body, require the production of new cells via cell division. However, specialized cells, such as blood and muscle cells, are unable to divide and produce copies of themselves. Instead they are replenished from populations of stem cells, which have the unique ability to divide to produce both copies of themselves and other cell types. Stem cells, therefore, play a crucial role in supporting tissues such as blood, skin, and gut that undergo continuous turnover(cell replacement), and muscle, which can be built up according to the body's needs and often damaged during physical exertion.

Research on stem cells is advancing knowledge about how an organism develops from a single cell and how healthy cells replace damaged cells in adult organisms. This promising area of science is also leading scientists to investigate the possibility of cell based therapies to treat disease, which is often referred to as regenerative or reparative medicine. Scientists primarily work with two kinds of stem cells from animals and humans: embryonic stem cells and adult stem cells, which have different functions and characteristics. Scientisits discovered ways to obtain or derive stem cells from early mouse embryos more than 20 years ago. Many years of detailed study of the biology of mouse stem cells led to the discovery, in 1998, of how to isolate stem cells from human embryos land grow the cells in the laboratory. These are called human embryonic stem cells. The embryos used in these studies were created for infertility purposes through in vitro fertilization procedures and when they were no longer needed for that purpose, they were donated for research with the informed consent of the donor.

It has been hypothesisized by scientists that stem cells may, at some point in the future, become the basis for treating diseases such as Parkinson's disease, diabetes, and heart disease.

Stem cells differ from other kinds of cells in the body. All stem cells regardless of their source have three general properties; they are capable of, dividing and renewing themselves for long periods; they are unspecialized;

and they can give rise to specialized cell types.

The Potential uses of human stem cells

There are many ways in which human stem cells can be used in basic research and in clinical research. However, there are many technical hurdles between the promise of stem cells and the realization of these uses, which will only be overcome by continued intensive stem cell research.

Studies of human embryonic stem cells may yield information about the complex events that occur during human development. A primary goal of this work is to identify how undifferentiated stem cells become differentiated. Scientists know the turning genes on and off is central to this process. Some of the most serious medical conditions, such as cancer and birth defects, are due to abnormal cell division and differentiation. A better understanding of the genetic and molecular controls of these processes may yield information about how such diseases arise and suggest new strategies for therapy. A significant hurdle to this use and most uses of stem cells is that scientists do not yet fully understand the signals that turn specific genes on and off to influence that differentiation of the stem cell.

Human stem cells could also be used to test new drugs. For example, new medications could be tested for safety on differentiated cells generated from human pluripotent cell lines. Other Kinds of cell lines are already used in this way. Cancer cell lines, for example, are used to screen potential anti-tumor drugs. But the availability of pluripotent stem cells would allow drug testing in a wider range of cell types. However, to screen drugs effectively, the conditions must be identical when comparing different drugs. Therefore, scientists will have to be able to precisely control the differentiation of stem cells into the specific cell type on which drugs will be tested. Current knowledge of the signals controlling differentiation fall well short of being able to mimic these conditions precisely to consistently have identical differentiated cells for each drug being tested.

Perhaps the most important potential application of human stem cells is the generation of cells and tissues that could be used for cell-based therapies. Today, donated organs and tissues are often used to replace ailing or destroyed tissue, but the need for transplantable tissues and organs for outweighs the available supply. Stem cells directed to differentiate into specific cell types, offer the possibility of a renewable source of replacement cells and tissues to treat diseases including Parkinson's and Alzheimer's diseases, spinal cord injury, stroke, burns, heart disease, diabetes, osteoarthritis, and rheumatoid arthritis.

For example, it may become possible to generate healthy heart muscle cells in the laboratory and then transplant those cells into patients with chronic heart disease. Preliminary research in mice and other animals indicates that bone marrow stem cells, transplanted into a damaged heart, can generate heart muscle cells and successfully repopulate the heart tissue. Other recent studies in cell culture systems indicate that it may be possible to direct the differentiation of embryonic stem cells or adult bone marrow cells into heart muscle cells.

In people who suffer from type I diabetes, the cells of the pancreas that normally produce insulin are destroyed by the patient's own immune system. New studies indicate that it may be possible to direct the differentiation of human embryonic stem cells in cell culture to form insulin-producing cells that eventually could be used in transplantation therapy for diabetics.

To realize the promise of novel cell-based therapies for such pervasive and debilitating diseased, scientists must be able to easily and reproducibly manipulate stem cells so that they possess the necessary characteristics for successful differentiation, transplantation and engraftment.

The promise of stem cell therapies is an exciting one, but significant technical hurdles remain that will only be overcome through years of intensive research.

Scientists are excited about the potential uses of stem cells in many different areas of research: stem cells provide an ideal model for studying cells in the body that would otherwise not be replenished.

Stem Cell Come of Age

Cells that can grow into a range of tissues are initiating a revolution in biology. Stem cells can replicate indefinitely and can also give rise to more specialized tissue cells when exposed to appropriate chemical cues. Embryonic stem cells (derived from the earliest developmental sages of an embryo) can spawn almost all types of cells in the body.

The most impressive findings have come from animal work on neural stem cells, which are derived from the fetal brain and seem likely to exist in the adult brain, too. They grow readily in culture–unlike some other specialized stem cell and can form all the types of cells normally found in the brain. Thus, they may be able to repair damage caused by Parkinson's disease and other neurological conditions. Stem cells respond appropriately to developmental cues when introduced into the brains of mice; they engraft, migrate and differentiate the way mouse cells do. Moreover, they can produce proteins in a recipient rain in response to genes that were artificially introduced into the donor cells.

It seems the same control systems that regulate specialization of cells in a fetus continue to operate in adults; making prospects for brain repair seem realistic. Neural stem cells placed in a rodent brain can form neurons and make synapses of types appropriate to their location, an indication they are functional. Neural stem cells can form blood if they are placed in bone marrow. If other stem cell types can also modify their fates in this surprising way you are looking at a reservoir of cells in the adult that can regenerate all tissue types.

Medical applications of embryonic stem cells will probably require cells that are genetically matched to the patient, so as to avoid rejection. Nuclear transfer, the central technology of cloning could in principle provide matched cells because a cloned embryo derived from a patient's cell sample could yield embryonic stem cells .Yet there could still be show-stoppers. It may turn out that embryonic stem cells descended from cloned embryos lack the full potential of those from natural embryos, for example. Indeed, many embryos resulting from nuclear transfer have defects, possibly because gene expression is abnormal in embryos that lack two genetic parents.

Embryonic stem cells could be the most powerful ones of all, but only a small group of investigators is working with them, because at present only private funds are available.

The National Institutes of Health (the USA) has announced that it will support scientists who want to work with established embryonic stem cell lines but not investigators who want to establish the lines in the first place, because the process entails killing an embryo and so would contravene a congressional ban.

Biomedicine

The debate continues over the relative merits of using embryonic and adult stem cells for research and perhaps, one day, to treat patients. Kim and colleagues generated a specific class of neurons from cultured mouse ES cells and used the neurons to reverse symptoms of Parkinson's disease in rats. ES cells can generate specialized cell types that are therapeutically effective in animals. Meanwhile, Jiang and colleagues have derived remarkably versatile cells from the bone marrow of adult mice, rats and humans. These two studies further the promise of stem cells even while they stoke the debate about whether such cells should be obtained from embryos or adults.

Stem cells essential building blocks of multicellular organisms have two defining properties – they can produce more stem cells and they can generate specialized cell types such as nerve, blood or liver cells. Stem cells come in different varieties, relating to when and where they are produced during development, and how versatile they are Pluripotent stem cells give rise to all cell types. The best Characterized are ES cells, which are derived from very early mouse or human embryos. These cells proliferate indefinitely in culture, while retaining the potential to differentiate into virtually any cell type when coaxed. So, in principle, ES cells might be able to generate large quantities of any desired cell for transplantation into patients.

Stem cell collected from tissues of adults or older embryos are typically more restricted in their developmental potential and ability to proliferate. Recent studies have raised the possibility that some adult stem cells can give rise to cells outside their tissue of origin; however, these results are controversial and have often proved difficult to reproduce. Nonetheless, those opposed to using human ES cells tout the possibility of pluripotent adult stem cells as a way of realizing medical gain without ethical pain. Although researchers generate ES cells from pre-implantation embryos in culture, and several countries have sanctioned deriving human ES-cell lines from 'surplus' embryos created through *in vitro* fertilization, some remain uncomfortable with the destruction of human embryos, even those destined never to be implanted in a uterus.

Beyond these ethical issues, there are technical obstacles to the use of ES cells. First, these cells can be obtained only from very early embryos and, although several human ES_cell lines have been made, they will not be immunologically compatible with most patients where require cell transplants. So researchers will need either to derive many more ES-cell lines or to customize ES cells on a patient_by patient basis by 'therapeutic cloning'. Second, undifferentiated ES cells form teratomas–benign tumours containing a mixture of tissue types – after being transplanted. Thus ES cells must be reliably differentiated into the appropriate cell type in culture before transplantation. The potential benefits of treating diseases by using specialized cells generated in vitro are enormous. But much further work is needed. Possible risks include the tendency of ES cells to form teratomas, and the unknown hazards of using cellswhether ES cells or MAPC that have been cultured for long periods. And, although MAPCs seem to have normal chromosomes, it is important to establish that the pathways governing cell proliferation are unperturbed. Otherwise, short-term gains might fall prey to long term complications.

A Significant Breakthrough

Researchers in South Korea on February 12,2004 announced they succeeded in extracting stem cells from a cloned human embryo. They derived embryonic stem cells (the building-block cells that ultimately develop into almost all the different cells and tissues of the body) destroying the embryos in the process. They then grew entire colonies of genetically identical stem cells.

The researchers began with a group of 16 women who were given hormone treatments to produce large numbers of reproductive egg cells. They eventually obtained 242 eggs from the women. Then the scientists used innovative techniques to strip out the nucleus from each of these egg cells. They next took body cells from the same women who had donated the egg cells. The body cells have two sets of chromosomes, the full genetic blueprint needed to create a human being. The scientists then removed these body cells nuclear material and placed it into the egg cells. The result was 66 cloned eggs, in effect, human embryos, with the exact genetic makeup of the original females.

The researchers succeeded in growing 30 of the embryos for a week to the blastocyst stage. That's when each embryo consists of several hundred cells. At that stage, many of the embryo's cells are preparing to grow into stem cells.

Investigators have taken those cloned human embryos and have been able to extract from them these very unique types of cells that are capable in the laboratory of forming every cell type that is present in the human body. This gives a very unique opportunity to do several types of expeiments for cell based therapies-a patient's own nuclear material to derive stem cells can be used which would match that patient so that any cells grafted to that patient would not be rejected. Moreover, there is an opportunity to study a myriad of genetic based diseases by generating stem cells that have been derived from nuclear material of patients with those genetic diseases.

Stem cells were used to create a stem cell line that can be sourced for therapeutic use in regenerative medicine. This success (presenting a perfect genetic match of the donor) is path breaking one. Treatment using patient's own stem cells will ensure that there is no risk of rejection of transinfection as in the case of donor transplants. Though therapeutic cloning suffers none of the controversies of reproductive cloning, it could take years of further research before stem cell science turns into actual therapies. Stem cell lines can effectively be evolved from adult stem cells. Other option available is freezing embryonic cord blood, which contains cells closest to embryonic cells, for future use.

Cloning Humans

A clone is a creature with a genetic make-up identical to that of its parent. It only has one parent, as sexual reproduction is not required. In fact, cloning is what happens in any asexual reproduction, but the general assumption is hat cloning is an unnatural process, performed by humans.

Human cloning, however, is unnatural. Asexual reproduction generally happens in plants, and only a few varieties of plants use this method of reproduction. To clone an animal requires a very precise scientific method which until recently, has been thought of as nearly impossible to implement. Many people asume a clone will look identical to the parent, but this is not necesssarily true, as, aside from being a younger version of the parent, different environments and stimuli in the development of the clone will alter its appearance.

Cloning is the ultimate form of genetic engineering, creating a perfect copy of an animal, whether it is to make a large pig which will yield lots of meat, or a replacement Child for grieving parents. As many people are already against other forms of genetic engineering, it goes without saying that there will be people apposed to cloning, possibly more than with other genetic engineering, as there are more issues involved in human cloning than with growing a large tomato. This, of course, is an issue in itself, as how is it's alright for humans to clone and alter vegetables and possibly animals but it is unethical to clone humans?

One of the main arguments for cloning is that a clone would have matching organs to a parent, and would therefore be able to donate an organ without risk of rejection. This is a very plausible situation, the parent would ask for a clone to be made in case of future illness, and the clone would be there, ready to donate whenever the need arose. Or, in the case of a diseased organ which is non-fatal, a clone could be grown after the illness is discovered, and the organ transplanted when the clone is old enough to have large is vital, the clone would have to be killed. This could be justified by arguing that the clone is merely an extension of the parent, although in my opinion this is a very poor argument. Another reason for cloning oneself would be for intellectual reasons, or just interest, for example a 50 year old man might want to clone himself to see what he would have been like growing up 50 years later than he did. This would be an intriguing psychological experiment on how different situations affect people. This may be thought of as selfish, but the child would not grow up in a laboratory with scientists recording his or her every move, but in a loving family, living like any other child. One of the feared reasons for cloning is to create a race of perfect humans, all identical, with high IQs and beautiful faces, but most of us realize that this is highly unlikely to happen, since one of the aspects of a good society is variety, and difference of opinion. If every one looked the same, we'd get tired of looking at each other, there are many different forms of beauty, and to clone one person's idea of beauty would be to force another person to look at a wall of hideous faces all day long.

Many of the arguments against cloning are religious, involving the existence of the soul. A definite reason against cloning for matching organs is that the clone will have its own soul, not the same soul as the person being cloned, and therefore has the right to live, and to choose what happens to it. This argument is valid even when the existence of the soul is not considered, because no one can deny that the clone will be a human in its own right, and therefore has the same human rights as anyone else. This is not so much an argument against cloning itself, but an argument against cloning for organs. Which may occur in the clone. There is a high risk of abnormalities developing, and it is unethical to destroy an embryo just because it is not perfect. It is also not right to bright a child into the would knowing that there is high chance it will be abnormal in some way, as it will have a lower quality of life than a healthy natural child. Since neither of these is truly acceptable, cloning should be avoided. A widely used arguments against cloning is the possibility of creating perfect races or a group of identical people. Although this is a very unlikely situation, with the technology being developed all the time, it is a scarily possible situation.

Ethical Issues

Stem cells hold the promise of allowing researchers to grow specialzed cells or tissue, which could be used to treat injuries or disease. Stem cell research is controversial because the best source of stem cells is human fetal tissue. Harvesting the stem cells destroys the embryo, which many see as morally problematic. The press, religious leaders, and others often emphasize uncompromising differences between pro-life and pro-choice beliefs. But, in reality, the two sides agree on almost everything:

- An ovum is alive and contains human DNA. Thus, it is a form of human life.
- An ovum is not a human person.
- Similarly a spermatozoa is a form of life.
- A spermatozoa is not a human person.
- At or shortly after conception, a fertilized ovum is a form of human life.
- An embryo is a form of human life.
- A fetus is a form of human life.
- A newborn baby is a form of human life.
- A newborn baby is a human person.
- Somewhere during the nine months between the ovum-spermatozoa stage and the newborn baby, human personhood begins.

When human personhood begins, an abortion should not be allowed, except under very unusual circumstances, such as to save the life of the woman, or perhaps to avoid serious long-term injury to the woman.

The only real difference between pro-lifers and pro-choicers involves the question when does human personhood begins. Most pro-lifers believe it happens at conception. Most pro-choicers say that it happens later in pregnancy.

In the Holy Quran, God speaks about the stages of man's embryonic development: " **We created man from an extract of clay. Then we made him as a drop in a place of settlement, firmly fixed. Then we made the drop into an *alaaqah* (leech, suspended thing, and blood clot). Then we made the *alaaqah* into a *mudghah* (Chewed substance)... *(Quran, 23:12-14)*".**

Stem cell research also involves ethical dilemmas – the creation of human embryos of nascent human life simply as a research. It creates a class of embryos that we treat really as a mere thing, a thing for our use. This may perhaps lead to weakening our dignity and respect for human life. The South Koreans stressed that their goal was not reproductive cloning. Instead, the objective was to create the stem cells, often called therapeutic cloning. The hope is that stem cells could one day be tailor made to match the genetic makeup of a patient suffering from a degenerative disease.

Misuse of new technology leading to human cloning has to be watched carefully - therapeutic human cloning is tantamount to throwing the field open to reproductive human cloning.

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Update

Intractable Epilepsy

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Intractable Epilepsy (IE)

Intractable epilepsy is defined as a disorder in patients having at least two seizures a month for over two years despite the administration of two first line antiepileptic drugs. Epilepsy is a common chronic neurological disorder and is estimated to affect about 1 % of the population. Although the prognosis for majority of patients is good, up to 15-35% do not respond to adequate antiepileptic drugs and are said to suffer from 'medically intractable epilepsy.

Majority of patients with epilepsy will have remission of the disease in course of time. However, a certain percentage continue to experience seizures throughout whole life despite best available treatment. Since 1993, a host of newer antiepileptic drugs (AEDs) have been introduced in the therapeutic armamentarium for treating patients with epilepsy. A lot of advancement in surgical techniques has taken place during last ten years in the management of selected cases of epilepsy and vagal nerve stimulation has also been receiving adequate attention in sophisticated centres. Inspite of all these achievements, even today epilepsy is considered to be a major cause of public health problem with varying outcomes in relation to its prognosis.

A majority of patients with intractable partial epilepsy are on multiple AEDs and have symptoms of chronic AEDs toxicity. Recent trends in the management of patients with epilepsy focus on monotherapy in preference to polytherapy. Even though the combination of drugs used and their doses were proper, intractability of seizures still persist if patient whose seizures are not controlled with completely monitored one antiepileptic drug. There is insufficient evidence to guide a choice between the standard AEDs such as phenobarbitone, phenytoin, carbamazepine and valproate and it remains to be established whether specific drug combinations are more effective than others. Many studies have shown that addition of second drug in patients with intractable epilepsy, controlled seizures only in additional 10-15% of cases with increased toxicity. Thus if seizures are uncontrolled with two primary drugs, further addition of primary drugs has no clinical benefit and leads to more adverse effects. Newer AEDs such as gabapentin, vigabatrin, lamotrigine, tiagabine and topiramate have provided new choices for the medical treatment of intractable seizures. A large number of refractory cases in a developing country like India may be unable to afford newer AEDs because of high cost and it is difficult to justify a 50-200 fold increase in the cost of pharmacotherapy, unless there is a substantial advantage. Because of these reasons, new AEDs will have a very limited application in Intractable epilepsy in these countries and surgery for epilepsy is a realistic approach for these cases.

The goals in the assessment of a patient with presumed medically intractable epilepsy are to establish the diagnosis of a seizure disorder, to classify the type of seizures, to delineate the lesion responsible for the seizures and to explore the reasons for the intractability. Complex partial seizures with secondary generalization are the most common seizures to undergo intractability among the seizures that were classified according to International League against Epilepsy Classifications. The generalized seizures which undergo intractability are generally those which are in combination with other seizures.

Burden Of Disease In India

In India epilepsy has a prevalence of 2.5-5.6 per thousand. The burden and magnitude of the problem of intractable epilepsy is not exactly known due to non-availability of uniform epidemiological data. It is estimated that, approximately 2,40,000-3,20,000 patients would be suffering from intractable epilepsy in India and incidence of intractable epilepsy (IE) is around 6-7\1,00,000.

True Versus Pseudointractability

It is pertinent to find out pseudointractability before designating a given case as Intractable Epilepsy. The important conditions which cause problem in the diagnosis are noncompliance, incorrect diagnosis(e.g., syncope, pseudoseizure, cataplexy, migraine, sleep disorders etc.), inappropriate selection of AEDs (e.g, carbamazepine and phenytoin may increase seizure frequency in complex partial seizures (CPS) in many childhood epileptic syndromes with multiple seizures types, gabapentin may increase complex partial seizures in some patients); concomitant use of certain epileptogenic drugs (viz, penicillin, INH, theophyline, insulin, lithium, prednisolone, oral contraceptive pills, chloroquine etc.).

Predictive Factors In Intractable Epilepsy

Presently accepted various predictive factors in IE are :

Seizure Type:

1. Partial seizures
2. Multiple seizure types
3. High seizure ftequency
4. Seizure onset in infancy
5. Febrile seizures.
6. Non idiopathic(non-inherited)
7. Specific Epilepsy Syndromes (e.g, West Syndrome, LennoxGaustat Syndrome)

Clinical

1. Focal neurological deficit
2. Family history of epilepsy
3. Cerebral palsy
4. Mental retardation
5. Behavioural disorders
6. EEG abnormality

Etiological

1. Organic brain lesions (e.g, mesial temporal lobe sclerosis, tuberous sclerosis, congenital cerebral anamolies etc.)
2. Head trauma
3. CNS infections
4. Hypoxic ischaemic encephalopathies
5. Metabolic disturbances (viz. phenylketonuria, maple syrup urine disease, mitochondrial encephalopathy).

Multiple Drug Resistance Gene And IE

Recently a multiple drug resistance gene (MDR -1) has been demonstrated in some patients with Intractable epilepsy. This gene expresses a p-glycoprotein pump that is capable of exporting hydrophobic drugs out of cells and ultimately back across the blood brain barrier. Overexpression of MDR-1 would be a reasonable explanation for repeated failure of drug resistance in certain patients, yet it is unlikely that all AEDs are substrates for the pumps. Other possible explanation for drug resistance might be genetic polymorphisms in drug targets.

Management of Intractable Epilepsy

In patients in whom treatment appears to be ineffective, the diagnosis of epilepsy and adherence to therapy should be reviewed. Consideration should also be given to the presence of a progressive cerebral disorder, such as a tumour or metabolic effect, and the patient investigated accordingly.

Precise classification of the types of seizure and of the epilepsy, from the clinical and EEG data, and careful recording of seizures and side effects are an essential if rational management decision are to be made.

The general principles of managing uncontrollable seizures are as follows:

- Review diagnosis and history of the epilepsy. The types of seizures and the epilepsy syndrome should be classified on the basis of clinical features and the EEG. In addition, imaging of the brain with high quality MRI scanning is appropriate at this time, looking for an underlying structural lesion.
- Check serum concentrations of AEDs.
- Review past and present AED treatment.
- Select the AED that is most likely to be efficacious and with the least side effects.
- Adjust the dose of the selected drug to the optimum with increments made if seizure continue and side effects do not occur.
- Attempt to reduce and discontinue the other AEDs, particularly those that have not aided seizure control and they are suspected of giving rise to adverse effects.
- If seizure continue despite a maximal tolerated dose of a first line AED, another first line drug should then be commenced, and increased to an optimal dose.
- If a combination of two first line AEDs is unhelpful, the drug which appears to have the most effect and fewest side effects should be continued, and the other AED replaced with a second-line drug. The chances of the addition of a second-line drug resulting in a 50% reduction of seizures is 20-50%, the chances of the patient becoming seizure free is less than 10%.
- If the second line drug is ineffective, withdrawal of the initial agent should be considered.
- Considered using a novel AED. Because of the limited clinical experience with the newer AEDs it appears appropriate to recommend these drugs for the patients with partial seizure disorders in whom other drugs are not effective or cause intolerable side effects. Several new antiepileptic drugs have been introduced in Indian market including gabapentin, lomotrigine, topiramate and oxcarbazepine. Thed efficacy of thesedrugs in intractable epilepsy is uncertain, and it is not yet known whether they cause less cognitive impairment and have fewer other adverse or teratogenic effects in Indian patients than conventional AEDs.
- The above scheme will generally take a number of months or even years to work through. If satisfactory control cannot be obtained with drugs, consider the possibility of surgical treatment of the epilepsy.

SURGICAL OPTIONS :

Of those determined to be the potential candidates for surgical interventions, an extensive evaluation including video/EEG telemetry, anatomical (MRI) and functional (Positron emission tomography PET or single emission computerized tomography SPECT), imaging and extensive neurophysiological testing, with or without angiography or Amytal testing is performed.

Surgical interventions consists of either a resective and/or disconnected procedure.

A **RESECTIVE PROCEDURES :** This include the different types of lobectomy, e.g, temporal, frontal etc., topectomy (excision of a small area tailored to the seizure focus itself) or hemispherectomy (the "ultimate" focal resection with the removal of one-half the brain). Resective procedures are more likely to result in a cure since they excise the seizure focus itself.

B. **DISCONNECTIVE PROCEDURES** : This include corpus callostomy and multiple pial transactions and tend to be more palliative rather than curative since they do not eliminate the seizure but interrupt the propagation of the seizures, limiting their generalization.

Despite that, these procedures can improve the patients quality of life by decreasing the frequency and intensity of the seizures.

C. **VAGAL NERVE STIMULATION (VNS).** Another type surgical procedure available for treatment of intractable epilepsy now a days are the implantation of neural stimulators, more specifically, the vagal nerve stimulator (VNS). The VNS was FDA approved in 1997 and has been found to be significantly lessen the intensity and frequency of seizures greater than 50% in over half the patients who are medically intractable and are not the candidate for other types of surgical interventions.

INDICATIONS OF EPILEPSY SURGERY :

1. Medically intractable epilepsy
2. Seizures significantly affect the quality of life.
3. Localized seizure focus.
4. Presence of signs predictable of seizure persistence.

CONTRAINDICATIONS OF EPILEPSY SURGERY :

1. Benign, self limited epilepsy syndrome.
2. Neurodegenerative and metabolic disorders.
3. Non-compliance with drugs.
4. Severe family dysfunctions.
5. Associated psychosis.

ROLE OF KETOGENIC DIET IN INTRACTABLE EPILEPSY :

Ketogenic diet is one of the oldest method of treating childhood epilepsy. In children with intractable seizures who have failed drug therapy and are not candidate for epilepsy surgery, this therapy is as or more effective than the addition of new antiepileptic drugs. The ketogenic diet consists of a high proportion of fats and small amounts of carbohydrates and proteins. The basis of therapeutic effectiveness of the ketogenic diet is because of the ketosis that develops when the brain is relatively deprived of glucose as an energy source and it must shift to utilization of ketone bodies as the primary fuel. One-third to one half of the children of intractable epilepsy appear to have an excellent response to the ketogenic diet in terms of a marked or complete cessation of seizures or reduction in seizure activity.

FUTURE TREATMENT PROSPECTS OF INTRACTABLE EPILEPSY :

GAMMA KNIFE RADIOSURGERY (GKR): This is one of the very promising technology in the treatment of intractable epilepsy. Clinical trials of GKR for temporal lobe epilepsy are presently ongoing in the United States. This therapy has been trialed in Europe and elsewhere and, preliminarily, has been found to have similar seizure free outcomes as surgical resection of the temporal lobe focus in patients with temporal lobe epilepsy. In the future, there is the potential that GKR could actually replace the open surgery through this minimally invasive approach.

On the horizon and presently intense areas of research are on the use of deep brain stimulation (DBS), gene transfer and cellular transplantation.

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Profile of Animal Bites And Rabies at SMHS Hospital of Govt Medical College Srinagar

M. Rafiq MD, Talib Khan MBBS, Muneer A. Masoodi MD, Rifat Jan MBBS, Suffora Bilquees MD

ABSTRACT

The present study, which was done for the year 2002, reveals the extent of the animal bites being more in rural areas to the extent of 77.82 % and being more in age group of 6-15 years to the tune of 38.42%. The involvement is more in lower limbs to the extent of 72.94% in children bellow 15 years and 65% in children and persons greater than 15 years. Most of the bites were from stray/ street dogs being more common in October to January. About eight cases of rabies reported to the hospital in study period out of which one developed rabies in spite of Nervous Tissue Vaccine. The study highlights the need for changing to modern tissue culture vaccines with new recommended schedules which are convenient and which need fewer vials.

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Introduction:

Rabies is an epizootic and enzootic disease of worldwide importance with about 60,000 deaths per year and about 10 million requiring post exposure prophylaxes(1,2). Rabies ranks 12th on the WHO list of major mortality causing disease(3). In India, rabies occurs in all parts of country with the exception of Lakshadeep and Andaman and Nicobar Islands with about 30,000 deaths and about 1.1 to 1.5 million people receiving post exposure treatment(4). Rabies in India is mainly transmitted by stray dogs which form about 80% of dog population in our country. Various studies have found that dogs are responsible for 85-96% of animal bites requiring an Antirabic treatment. Dogs also transmit the disease to other domestic animals and thus helping to maintain the reservoir of infection(5). The vaccine available for human use in this country are Nervous Tissue Vaccine (NTV) and Tissue Culture Vaccine (TCV). In India, Nervous Tissue Vaccine is available free of cost at Govt hospitals. An antirabies clinic is being run at SMHS hospital, Srinagar and about two to three thousand cases come to the clinic every year for immunization (Post Exposure Prophlaxyis). Because of this high percentage of cases, a study was proposed to find the profile of animal bites as well as rabies cases.

Methodology:

One year data was analyzed for year 2002 (1st January 2002 to 31st December 2002) to find epidemiological parameters in relation to animal bites, age and sex distribution as well as to find seasonal variation and incidence in relation to body parts involved on pretested proformas from rabies clinic attendees. Rabies cases during the same period was also analyzed from records and case sheets.

Observations:

The data analysis revealed that mostly males to the tune of 69.86% were involved. Children less than fifteen years were the most common victims to the tune of 47.52% (9.10% +38.42%). The relevant details are put in **Table I**.

As for as rural and urban distribution is concerned, the profile of animal bites show them to be more in rural areas to the extent of 77.82% than in rural areas. The relevant details are put in **Table II**. Regarding the site of the bite, more cases are in lower limbs , constituting about 68.77%, (72.70 % in males and 59.67% in females). The lower limb involvement is quite more in age group of less than 15 years to the extent of 72.94% than in age group more than 15 years where it is 65.00% .The details are put in **Table III.**

As far as status of animal bites is concerned they are mostly dogs bites constituting about 98.64%. Out of which 98.15% are bites from street /stray dogs while as pet dogs constitute 0.49%. Bear bites are the next major

Key Words: *Rabies, Nervous tissue vaccine (NTV), Tissue Culture Vaccine (TCV)*

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Table I

Age and sex distribution of cases.

Age	No of cases		Total	
	Males	**Females**	**Cases**	**Percentage**
0-5 years	102	65	167	9.10
6-15 years	503	202	705	38.42
16-30 years	332	100	432	23.54
31-45 years	211	102	313	17.06
46-60 years	92	57	149	8.12
>61 years	42	27	69	3.76
Total	1282 (69.86%)	553 (30.14%)	1835	100.0

Table II

Rural and utrban distribution of Animal bite cases.

Age	Urban	Rural	Total
0-5 years	30	137	167
6-15 years	154	551	705
16-30 years	114	318	432
31-45 years	40	273	313
46-60 years	64	85	149
>61 years	5	64	69
Total	407 (22.18%)	1428 (77.82%)	1835

group of animal bites constituting 0.98%. Other animal bites constitute 0.38%, including horses, cats, and milk ingestion from cow bitten by rabid dog. The relevant figures are shown in **Table IV**. The profile of rabies cases which constitute 8 cases for the whole year of 2002, depicted in **Table V** reveals that maximum of these are males above 15 years and mostly being from rural areas. On ascertaining the immunization status of rabies, cases it was found that one of the cases had received full immunization coverage with NTV and one had incomplete NTV immunization. Six cases had no antirabies vaccination although three among them had received tetanus toxoid. Since all these cases came in a critical stage and a detailed case sheet was not available. The relevant figures are kept in Table **VI.**

Discussion:

In the year 2002, 1835 patients received antirabies vaccination from the SMHS hospital; most of them were males to the extent of 69.86%. and most of these patients (38.42%) were in the age group of 6 to 15 years. The main reason for this being outdoor activities carried out by males and the incidence in children (age group of 6 to 15 years) is more common because children in this age group are very active, being naughty and vivacious to invite the bite. Similar observation have been reported by Trivedi CR (1981)[6]. in their study.

Most of the cases of animal bites belonged to rural areas constituting about 77.82%. Similar observations have been made by Bhalla S and Nagar SS (2002)[7]. However Banerji et al (1974)[8] in their study had shown most of the animal bites being in urban areas. The figures in our study indicate that the drastic and effective dog population control measures are being adopted in urban area and no such activities being undertaken in rural areas. Besides 75 % of the population live in rural areas. One more reason could be the over the counter availability of modern antirabies vaccine in city clinics with refrigeration facilities and very minimal such facilities being available in rural areas and hence, rural people adopting more of conventional vaccination (NTV) being freely available at Govt Hospitals /Dispensaries , though with less stringent cold chain maintenance. Lower limb involvement is probably more because of higher chances of exposure to the same. Similar views have been made by Bhalla S and Najar SS (2002) in their study. Most of the animal bites were dog bites especially street dogs. Similar situation has been reported by Chowdary JR and Modak KK (1983)[9]. Most of the rabies cases were males, which can be explained by their outdoor activities. Most of the rabies cases belonged to rural areas, which can be explained on the same terms as that of animal bites. One of the rabies cases had received NTV full course and one had partial vaccination but majority (75%) were not vaccinated at all. The vaccine in the first patient was given at a hospital setting. Cold chain status could not be ascertained, as the history was unreliable from attendants. The wound was in upper arm & was classified as Class III exposure. No history of Immunoglobulin administration was present. Vaccine failure could be one of the reasons for the same also, because some of the patients had taken ARV to their homes (to be kept in cold boxes) and might have lost the potency. Singh S and Kumar TA (1999)[10], Dhaliwal DS and Dhalwal RS (2000)[11] report a death rate because of rabies in 0-13.4% of cases inspite of full course of NTV vaccination. Our figures are in tune with their inference.

Conclusion and Recommendations:

The presents study although a small one as compared to the magnitude of the problem depicts highly about the public health problem of rabies and animal bites. What is needed is an effective dog management not only in urban areas but also in rural area. Besides modern tissue culture vaccines in the hospitals because of easy administration, convenient schedule, should replace the conventional vaccine although cost is a major drawback. The availability of subsidized vaccines at Government hospitals is needed.

Acknowledgement

Table III

Incidence of involvement of parts of body

	LL		UL		Trunk		Head		Total	
	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
Total	1262	68.77	500	27.25	62	3.38	11	0.60	1835	100
Males	932	72.70	301	23.48	41	3.20	8	0.62	1282	100
Children < 15 years	636	72.94	201	23.05	33	3.78	2	0.23	872	100
Children > 15 years	626	65.00	299	31.05	29	3.01	9	0.93	963	100

Note: LL stands for lower limb, UL stands for upper limb

TABLE IV

Profile of animal bites:

Animal		Total	%
Dog	Pet	9	0.49
	Street/stray	1801	98.15
Bear		18	0.98
Others		7	0.38
Total		1835	100

TABLE V

Profile of rabies cases:

Age group	Males (%)	Females (%)	Rural (%)	Urban (%)
Up to 15 years	1(14.29)	0(0)	1(16.67)	0(0)
> 15 years	6(85.71)	1(100)	5(83.33)	2(100)
Total	7	1	6	2

TABLE VI

Immunization status of rabies cases

Case no	NTV (C/I/N))	Others	Remarks
1	C	TT	Pt developed Rabies inspite of full vaccination..
2	N	TT	
3	N	TT	
4	I	TT	Because dog survived beyond 10 days of bite
5	N	TT	
6	N	TT	
7	N	TT	
8	N	TT	

Note : NTV stands for Nervous Tissue Vaccine, C stands for complete vaccination, I stands for incomplete vaccination and N stands for nil vaccination.

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Kashmiri Language and Physician-Patient Communication Barrier

Ayoub Mirza MD, MRCP

COMMENT

“Listen to the patient, he is telling you the diagnosis”
Sir William Osler

It was first day of my internship and I was sitting elegantly in the internal medicine clinic with a stethoscope hanging around my neck looking very professional and self-assured when a young lady entered the room and sat opposite me. “*Myeh haz cheh kalas shrakeh wasaan*” “*Achen chum vizmaleh gachaan*” she started in Kashmiri even before I could greet her. Her routine history and physical examination was unremarkable and I resisting the temptation to examine her head for wounds. I felt an itch in my head and started scratching it, all my confidence vanished in thin air but I tried hard not to show it. I went to consult my registrar who was buried in the crowd of patients and I did not feel it worth asking his opinion amongst the anarchy in his room. The simple fact was that I had no clue as to why she was experiencing these symptoms, yet I did not want to acknowledge my ignorance. I blamed her symptoms on stress, prescribed an antidepressant and promptly showed her the door; next patient appeared before me in no time. Years later I realized that she was trying to tell me the symptoms of migraine headache. I felt a sense of shame for not being able to understand symptoms of a fellow Kashmiri and sense of guilt for not being able to diagnose migraine. All my information about this disease proved worthless due to my poor communication skills. The problem was that I thought I understood Kashmiri, I had never been taught these terms in medical school.

Communication requires two people to have basic understanding of the language. However when two people are talking about some specialized field both should achieve some level of competency in that language. Proper communication is the backbone of patient-physician relationship and when patients consult physicians they expect him or her to be proficient in the language. The basic agreement is that when patient is describing symptoms physician has good grasp of the language of communication; this rule applies globally. A foreign medical graduate is expected to demonstrate proficiency of local language by passing some kind of examination like International English Language Testing System (IELTS) for UK, Test of English as Foreign Language (TOEFL) for USA etc. Some countries even require foreign graduates to enroll into native language courses before they can start regular classes. Why are Kashmiri physicians not expected to have competence of Kashmiri language?

Efficient verbal communication between a physician and patient is essential anywhere in world but this is more so in Kashmir where physicians often do not access to other means of communication like printed material and electronic media and oral communication is perhaps the only mode of physician-patient interaction. Also modern day technology is not always available and medical interview is often the most important and the only diagnostic procedure performed by a Kashmiri physician. Even though most Kashmiri physicians understand Kashmiri they often miss diagnostic clues provided by patient's history due to lack of official training in Kashmiri medical terminology. It will not be an overstatement that most Kashmiri physicians do not have good grasp of “patient lingo”. Kashmiri physicians and patients are often “separated by a common language”. I certainly experienced this on very first day of my internship.

English is a medium of communication and education in medical schools in India, yet majority of population doesn't understand this language. This poses a major challenge for physicians-patient communication. Regional language is taught in schools in many Indian states that compensates for this communication barrier to some extent. Kashmiri physicians lack the privilege of learning native language in schools and Kashmiri people lack the opportunity to learn new terms from media including newspapers, periodicals and journals as most of these are published in English or Urdu. This issue is emphasized by the fact that I wrote this article and you are reading it in a foreign language. Communication barrier is further widened by the many dialects and historical influence of other languages on Kashmiri.

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Kashmiri is an ancient language of Indo-Iranian and Indo-Aryan origin spoken by more than half of the population of Jammu and Kashmir. Its literature can be traced to early 14th century. Many scripts including Devanagri and Roman have been used in the past but Persian based script is accepted officially. Persian has influenced Kashmir and its language to the point that it has been called Irani-Sageer (smaller Iran). Hindi, Urdu, English and Arabic are other languages that have left their impression on Kashmiri. Therefore many words used in Kashmiri Language today are either taken directly or derivative of these languages.

Kashmiri is a language of many dialects; there are many social dialects and at least 13 regional dialects spoken in different areas of Kashmir including standard Kashmiri, Kishtwari, Rambani, and Raisi. Moreover Kashmiri Muslim and Hindus speech differs considerably and some people have even used terms like Sansktrized Kashmiri and Persianized Kashmiri to denote these two styles. Thus a physician in Kashmir has to familiarize and self educate himself with different terms, tones, lilts and slangs used by people from different backgrounds. Unfortunately there is no official training provided in this field.

Deficiency of language on the part of patients leads to poor expression of symptoms and on the part of physician failure to understand them. This also leads to their inability to generate differential diagnosis and provide information and advice to patients. Patients often have difficulty explaining symptoms to themselves let alone transmitting this information to physicians. We are all familiar of the cases where patients consult cardiologist with symptoms like "*Dil Chum Raavaan*" or "*Dilus Chum Bar*" which more often than not is the symptom of depression that any cardiac disease. This leads to loss of resources and time of both the patients and physicians. Poor physician communication skills also leads to increase in medical errors and misdiagnosis, inappropriate use of antibiotics (which is a major problem in Kashmir), failure of patient's understanding of physician's empathy and resultant dissatisfaction of medical care and poor compliance.

Sometimes physicians use technique of simple translation of words but this may result in loss of the meaning of what patient is trying to state. Symptom of "*Zuw chuum chalaan Neerith*" means "I am dying" when literally translated but patients often use this term for expressing feeling of physical weakness. Similarly "*Kalas Chum Shraakeh Wasaan*" may mean throbbing headache. Patients often lack anatomical knowledge and simply state what they are feeling. Thus a patient expressing heartburn may state "*Dilas Chum Naar Basaan*" rather than "*Miadas chum naar basaan*". Such misuse of terminology is not uncommon in English language and term "Heartburn" used to mean acid reflux is a perfect example. Sometimes patients may use similar term for more than one symptom i.e. "*Shaansh Khasin*" may mean wheezing but it may also be used for breathlessness. Some symptoms can be very vague and ambiguous requiring further questioning. Symptom of "*Chakar*" may mean anything from vertigo to loss of consciousness to seizures. Some patients even use this term to describe colicky abdominal pain "*Miandas chum chakar yivaan*". This highlights the importance of skills that one has to acquire to effectively understand patient's symptoms. Different Kashmiri dialects can also make communication demanding. Patients from Srinagar often use term "*Parhez*" for dietary restriction whereas word "*Sikreh*" is used in some other parts of Kashmir.

One of the reasons for this communication hurdle is that Kashmiri language has not moved forward to incorporate new terms leaving it deficient in modern terminology including medical vocabulary. There are no Kashmiri expressions for terms like Endocrinologist, Rheumatologist and diseases like heart attack or pancreatitis. Advancement of Science and Technology introduces new terms to the vocabulary. The Oxford English Dictionary Online contains more than half a million words and definitions and adds at least 1,000 more every three months. To keep up with this change other languages borrow words from English directly or change pronunciation to fit it in their language. All languages including English have borrowed words at some point. English words like Safari and Sugar are borrowed from Arabic and words like potato and rodeo from Spanish. Similarly words and terms can be borrowed and modified for Kashmiri; alternatively new words may be created and made official by including it in the Kashmiri dictionary. Term "*Sugar bemaer*" used for diabetes is an example of a borrowed word that is effectively used.

In order to deal with physician-patient communication barrier it is essential that first and foremost it should be recognized and acknowledged as a problem. Addressing it needs multi prong approach including political commitment from the government and strong determination from teachers, physicians, Kashmiri linguists and policy makers. Establishing a task force comprising of physicians, academicians, linguists, scholars and representatives of government to address this issue may aid in such an endeavor.

Even though it is impractical and unwarranted to change the medium of education in medical schools it is possible to teach Kashmiri terminology to the medical students and make it part of school curriculum. Such courses can teach grammar, phonetics, vocabulary, terminology, dialects and phraseology of Kashmiri language. Jargon of medical language learned in medical schools carries little meaning for the patients and at times heightens their anxiety and apprehension. Using plain and simple words in native language with patients should be encouraged. Medical students and physicians in training can receive courses for counseling patients in simple language yet balancing it with cultural and religious beliefs of a patient. This skill is not easy to acquire and needs to be taught at all level of physician training. Continuous medical education courses, seminars and conferences can be organized to address this issue. Demonstrating proficiency of Kashmiri language and communication skills should be a prerequisite for graduation. It is unrealistic to translate all medical books into Kashmiri however it is practical to translate medical articles and publish it in journals like JK practitioner. Such an intervention will not only improve physician-patient communication but also enrich Kashmiri language. Kashmiri Department of Kashmir University can play a big role in this field and the details if that are beyond the scope of this article, their Joining hands with Kashmir Cultural Academy and making attempt to introduce new terminology is one of the examples. Disease profile worldwide is changing and Kashmir is no exception. Prevalence of diseases like diabetes, coronary artery diseases, and AIDS has significantly increased in Kashmir in last few years. Physicians can expect to diagnose and manage these conditions more often than before. Local media can play its role by running awareness campaigns for such diseases; this may bring secondary gain of introducing new terminology in population.

In summary poor physician-patient communication causes major impediment for proper diagnosis and treatment and can have fatal consequences. This problem needs to be recognized and dealt with.

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Erratum:-Misoprostol in obstetrics & Gynaecology. **JK-Practitioner 2005; 12(2) 94-97** Read doses of misoprostol in micrograms instead of milligrams or grams as mentioned wrongly in the article.

*To speed up the process of REVIEW, manuscripts could be submitted on **zabbask2003@yahoo.co.in** with intimatation to zaffarak@hotmail.com

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Review Article

Rational Technology in Healthcare

Syed Amin Tabish FRCP, FAMS

During the last decade of twentieth century, technological innovation has progressed at such a pace that it has permeated almost every facet of our lives. This is especially true in the field of medicine and the delivery of health care services. Although the science and art of medicine has a long history, the evolution of healthcare system capable of providing a wide range of positive therapeutic treatments in the prevention and cure of illness is a decidedly new phenomenon. Of particular importance in this evolutionary process has been the establishment of modern hospital as the centre of a technologically sophisticated health care delivery system. We are living in the age of nanosecond economy, e-governance, e-health, e-organization, and laser-guided deliverance of supplies from any corner of the world. Because health is a central concern of all human beings, healthcare delivery and the organization, management, and maintenance of systems required for that delivery process are activities that are carried through out the world.

Science for quality of life

Science and technology have profoundly influenced the course of human civilization. As we stand today at the beginning of the new century, science promises its unlimited potential to bring revolutionary changes in human lives for better. We must take science to the people.... Bright future can be realized only when science is in league with the majority of our society. Science and technology policy of a country must empower the community as a whole and not merely a section of it. It should provide a road map for integrating science and technology directly with societal power. We need to find ways of making the fruits of scientific development available and accessible to all people, at an affordable cost. Such policies are essential for national development and prosperity. Concerted efforts are required to make full use of science for improving the health situation of our people. The optimal harnessing of appropriate technology, the development of human resources, health promotion and the building of infrastructure for science and technology must be a top priority for the governments.

Science and technology are universally recognized as the basic factors influencing national development and prosperity. Those countries that accord science and technology a top priority achieve commendable standards of health and living.

Scientific and technological advances, industrialization, socioeconomic development, improved communication, better hygiene and increased food intake have helped in increasing life expectancy and in reducing mortality rates. This is true about control of communicable diseases and nutritional status.

Emerging trends

Modern day health care institutions are multifaceted and multidimensional dynamic organizations. Hospitals have a commitment to healthy living. The fast moving developments in information technology sweeping the western world are breathtaking. The internet, the multimedia information highway, wireless access and computerized medical records are set to change the world known to health professionals. To optimize the impact of such technology, there is a need to know what is available. Keeping tab of what is available in this world of innovations and experiences is crucial.

E-Health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information derived or enhanced through the internet and related technologies.

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Networked health systems and consumer access to the internet now provide a means of moving from the model of episodic contact between consumers and healthcare providers to a model of continuous relationship more in keeping with the healthcare requirements of consumers.

Burden of disease

Strategies to advance heath at country level must address the burden of ill-health among very poor population, taking account of the divide in healthy life expectancy – between and within countries - giving particular emphasis to childhood illness; reproductive ill-health, including maternal mortality and morbidity; communicable diseases; nutrition; injury and non-communicable diseases; mental ill-health. Special attention should be paid to tackling communicable diseases: HIV/AIDS infection, rolling back malaria by cost-effective interventions, stopping tuberculosis and combating other communicable diseases. There is a need to track and assess risks to health, and to help societies to take action to reduce them. The objective is to enable people to understand, then to limit, the risk factors for health.

The demand for health care

The widespread diffusion of evidence-based medicine should help health professionals and to patients reaching better consensus on what is good preventive practice. Every patient encounter is an opportunity for prevention.

The demand for healthcare is growing more rapidly than society's willingness to fund it.

In healthcare, the resource allocation issue becomes 'rationing' deciding who will be treated, who will be left untreated to live in pain and discomfort and, in extremis, who will be left to die. Such choices are unavoidable, but in healthcare are hedged round by the mystic of medicine and by individual and social reluctance to accept the one certainty in life – death. Ideally, scarce healthcare resources should be allocated to maximize improvements in 'health gain', and in the length and quality of life. A failure to behave efficiently (to improve health to the greatest extent at least cost) is unethical. A doctor who uses resources inefficiently deprives potential patients of care from which they could benefit.

There are many impediments to the achievement of efficiency in the allocation or rationing of healthcare resources. These include the failure to evaluate common policy processes (ritual), what works in medicine (ignorance), and undue haste in operationalising rationing.

Science has to be an active partner at all levels of heath development. Research and development institutions must be managed imaginatively and efficiently to advance and utilize science and technology for health development in the best possible manner.

Technological advances

Rapid technological advances are forcing health care institutions to constantly upgrade their diagnostic and therapeutic facilities. The effect of technological innovations in electronics, nuclear medicine, 'spare parts' surgery, laser therapy, medical imaging, interventional cardiology, immunology, pharmaceuticals, and stem cell have been profound.

Modern health care institutions are increasingly coming to the view that technology is an integral part of all major policy and programme-planning decisions. The development and implementation of a comprehensive technology management programme requires a systematic approach to ensure that the most cost-effective methods of safe and effective operation of medical equipment are utilized.

Technology assessment examines the available evidence to form a conclusion as to the merits or role of a particular technology in relation to its possible use, purchase, or reimbursement in current medical practice. Results of clinical studies, theoretical performance, economic analysis, ethical considerations , and personal value judgments all enter into the final decision regarding whether or not the technology should be viewed as investigational or an accepted standard (or state-of-the-art) of practice. This decision will have a major impact on any institution involved in or planning to acquire the eventual technology.

Technology assessment is often undertaken to maximize the quality of patient care and to control health care costs. To maximize quality is to ensure that the patient receives the most effective health services that medical sciences can provide at a given point of time.

Technology assessment includes the evaluation of the safety, effectiveness, efficiency and appropriateness of devices, medical and surgical procedures, and pharmaceuticals promoted as improving a patient's condition or quality of life.

The most common approaches for technology assessment include literature review and synthesis, consensus panels, decision criteria, meta-analysis, outcomes assessment, and clinical care.

Future health care technology

Innovations range from a whole assay of new vaccines, drug delivery systems, better stress management techniques, new methods of wound healing and electro-anaesthesis, Coronary Artery Bypass Grafting surgery (CABG) and Percutaneous Transluminal Coronary Angipolasty (PTCA) interventions, chemical and mechanical sensors, to manipulations at the level of the cell, such as gene therapy. The specific and technological field of neurosciences is rapidly evolving, with the fusion of molecular biology, cell biology, new imaging techniques, such as PET, and the behavioral sciences. Technological applications of plasticity research can be found in areas transplantation of nervous tissue, new pharmacological agents, for instance, using neurotrophic factors or cell surface components, environmental interventions, such as those concerned with toxic agents or behavioral strategies, etc.

In the future lasers are expected to play a role in the treatment of ischemic heart disease. At present their major application in medicine is in surgery.

Computer-assisted medical imaging, especially picture archiving and communication systems (PACS), tissue plasminogen activator (in cardiovascular treatment), introduction of new immuno-assay techniques and diagnostic kits, and a continuing integration of computers, automation, including robotics and telecommunications, and applicability of monoclonal antibodies for diagnostic and therapeutic purposes will stimulate change in the organization of laboratories. Systems are actively being developed to integrate all imaging technology into one interlinked digitalized system, with instant access to very large data memories and transmission to video consoles in other parts of the hospital, such as the operating theatre or in-patient unit, and even outside the hospitals. It will lead to the fully computerized flawless radiodiagnosis department. Other advantages, such as video and print-out telephone communications for the deaf, micro-electronic functional alarm systems, and the development of robots controlled by voice commands to takeover a number of daily chores, increase the ability of people, and especially the elderly, to be less dependent on institutional care and cure.

Future developments in genetic screening where most of the genome would be known at birth, with rather comprehensive mapping of the health risk patterns per individual, will have far-reaching consequences. These would include large number of genetic disorders, susceptibilities to many other diseases (certain types of cancer and cardiovascular disease), etc.

Possible overview of emerging and imminent health care technology coupled with consequences of technological change should be explored. The analysis of possible implications before the technology comes into widespread use needs a more in-depth assessment.

Technology Assessment

For health care institutions to remain cost-effective and competitive, it is absolutely essential that any new medical technology be chosen or selected based on the 'knowledge' gathered about its performance, value and availability. Such a selection process should be guided by an orderly, well-conceived, unified system of assessing and testing the new, comparing the new with the existing technology, and making decisions based on valid, reliable information.

To deal with continuous and to function within increasing financial constraints, the need for technology assessment is essential. The assessment of technology is the analysis of the effects of the introduction or widespread use of a technological innovation. The first stage is to establish the feasibility of a technique (to determine if it is safe and can produce technically acceptable results). The next step is to establish the efficacy, that is, the performance of the technology under ideal conditions using, selected patients. If the technology under consideration does not work effectively under the most favourable of circumstances, it certainly cannot be expected to be effective under less than favourable circumstances.

Even if a technology does perform well when guided by its innovator, it may still prove insufficiently robust to produce substantial benefit when used routinely in a less controlled environment. Success here often depends on how readily the skills associated with the technical procedure are learned and how successful the procedure is in improving the health status of patients in the general population – The test of effectiveness.

The next step is the economic appraisal, that is, the value of the technology (its contribution to quality care in terms of both cost-effectiveness and cost benefit).

Diffusion of Medical Technology

The process of innovation of technology begins with basic research. Once a device is created, it then moves through various stages of development, evaluation to ensure compliance with regulatory requirements, adaptation for market use, and finally obsolescence. The stage at which a medical technology enters and becomes a part of the health care system is called diffusion, which begins with a slow initial introduction, has a take-off phase characterized by an increasing rate of adoption, then slowly levels off to the mature phase, and eventually decreases as obsolescence approaches. It has been observed that the rate of adoption of new technologies in teaching hospitals is usually higher than that of non-teaching hospitals.

Technology assessment should occur at the point of crossover from the innovation phase to the diffusion phase. Emphasizing the importance of technology assessment in medicine McDermott (1977) argues:

"At any one time...... the body of the knowledge that forms practice, especially the therapeutic practice, of medicine is a curios mixture of a highly effective technology interspersed with islands of dogma, empiricism, conventional wisdom, and at times, superstition. With the exponential growth of 'interventions', however, this situation can no longer be tolerated. The persistence of invalidated technologies leads not only to serious diagnostic error but to waste of skilled and of money; it also contributes to the increasing load of medically induced, i.e., iatrogenic, disease and, by perpetuating untruths about chronic diseases, can give rise to untold human anguish and misery".

Once any technology is available, whether it is drug, device, or a medical or a surgical procedure, clinicians are constrained by their use by training, ethics, economic considerations, their estimate of patient benefit, and the threat of malpractice suits. The appropriate use of all available medical technologies has been left solely to clinician and patient discretion. Innovative methods for more and better technology assessment are essential.

There is a need to establish a national centre for appraisal and assessment of health technologies. The objective of such and organization is to provide total quality appraisal of any technology referred to it for assessment.

Improving the use of Technology

A strategy based on reliable data, to identify effective technologies, to determine the limits of appropriate use based on the sliding scale of benefits and burdens, and then, to determine the affordable level of use is of paramount importance.

Efficacy and safety are the basic starting points in evaluation. If a technology is not efficacious, it should not be used. To determine the benefit to be achieved, some important factors must be considered including technology capacity, diagnostic accuracy, diagnostic impact, and patient outcome. The benefits to be achieved in the case of therapeutic technology include improvements in morbidity, mortality, and life expectancy as consequences of a particular technology's ability to correct physiology and control pathology – relieving illness, saving lives, and increasing lifespan (referred to as its medical benefit). Both medical and personal benefits must be taken into account when assessing the benefit of a given therapeutic technology.

The effect of medical technology varies depending on the individual treated. IT is important to determine its efficacy is stable for all populations who suffer that condition or range of conditions. Knowing how a technology's efficacy varies across different patient populations is central to avoiding harmful use and maximizing benefits to patients.

The outcome of application of medical technology is partially determined by the skills, knowledge and abilities of clinicians, technicians, nurses; by the quality of drugs, equipment, and industrial settings; and by the support systems used by those personnel during the application. Complete evaluation of a technology must determine effectiveness (its likelihood of benefit under less favourable conditions of use) as well as efficacy (the benefit likely to be generated by a technology under ideal conditions of use).

It is necessary that medical equipment be assessed prior to acquisition. Attention has to be paid to safety, homogeneity (determination of whether the technology would perform a required function and correspond to the nature and goals of hospital, and whether it would be used, that is, would the technology fit appropriately into the facility as a whole), efficacy, cost-benefit analysis, and monitoring and reassessment.

Methods of Assessment

There are two ways to validate technology. One approach provides only a portion of carefully studied group with the technological intervention; the individuals in the total group are selected randomly. This method is known as Randomized Controlled Trials. The other approach provides the technological intervention to a consecutive series of persons with the disorder, and the nature and extent of change in the disorder from its previous characteristic behaviour serves as the basis for evaluation – the method of Natural History. Before the study is undertaken, some preliminary investigations must be initiated to delineate the specific conditions and the classes of patients for which the treatment is likely to provide benefit.

Acquisition of new equipment

The pre-purchase evaluation of the equipment is an important function of the Bioengineering Department. This involves acquiring the proper clinical requirements from the medical staff; assessing the safety, user interfaces, environmental impact, and the conditions under which the equipment must operate; and conducting an appropriate survey of the state of technology and the commercially available equipment.

Once the decision is made to purchase the equipment, a purchase order is issued. Custom construction takes place if the desired system requires specifically designed features. The steps taken include generation of system specification, solicitation of proposals, proposal evaluation, vendor selection, and contractual acquisition. Once the equipment and been received and accepted, the equipment is listed in the equipment inventory and maintained in accordance with the technology management policies and procedures.

Facilities Management

The effective management of a modern medical facility represents a significant challenge. It is essential that biomedical engineers understand the wide range of activities associated with facilities management, which includes housekeeping, grounds maintenance, design, construction and renovation, engineering services (heating, ventilation, air-conditioning,) and operations (policy, organization, budget, personnel and financial activities).

Equitable access

Access to quality healthcare and thereby validated medical technologies is often quite unequal. Any given individual's share of the society's normal opportunity range should be determined, as far as possible, by one's talents and skills. Although opportunity will be unequal in this sense, it will be equal in the sense that everyone is constrained only by his/her own abilities.

Whereas disease is clearly one constraint that can cause individual's share of the normal opportunity range to be less than the share his/her talents and skills would otherwise make available to him/her, it is not the only constraint.

This kind of commitment to equality of opportunity that underlies efforts to mitigate social barriers to such opportunity for all justifies similar efforts against those conditions that can be prevented, removed, or at least somewhat ameliorated by health care and its technologies.

Looking ahead

In recent years, the proliferation of new technologies and approaches has changed the character of healthcare. Even though high technology can be a tool to promote health, the consequences of applying technology inappropriately include health care cost escalation, unintended health outcomes, and social disapproval. It is vital that a comprehensive scientific evaluation is made, accounting for the various economic, social and cultural variables found in specific health regions. To ensure the appropriate use of individual technology and its relevant contribution to the improvement in the quality of healthcare, scientific evaluation has become a necessity. There is a need for institutions to develop an ethos appropriately to determine the extent of its investment in modalities that will produce an optimal medical result. Society needs to be made aware of the difference between the functional development and faddism. Needs should be determined knowledgeably and the optimum aggregate of technology be determined logically to meet those needs.

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Exchange Transfusion through Peripheral Route

Sheikh Mushtaq Ahmed, Bashir Ahmed Charoo, Qazi Iqbal, Syed Wajid Ali, Masoodul Hasan, M. Ibrahim, B.Sc; Gh. Qadir, B.Sc.

ABSTRACT

Exchange Transfusion is a procedure commonly used for treating neonatal hyperbilirubinemia, a potentially neurological handicapping condition. The procedure has been traditionally done through the umbilical vein. This may not always be feasible & practicable in every case. e.g., umbilicus may be septic or the baby may be older than one week or have NEC when umbilical vein is shriveled & closed. We have succeeded in doing the procedure through the peripheral route by using the radial & brachial arteries & the antecubital vein.

A prospective study carried out in Department of Neonatology, Sher-i-Kashmir Institute of Medical Sciences, which is a tertiary care hospital in the Kashmir valley, from July 2002 to June 2004.

Out of a total of 1275 admissions over a two year period, 305 had jaundice among which 198 needed exchange transfusion. Ninety exchange transfusions through peripheral route were done without any complications. Brachial/radial arteries & a good peripheral vein on the other upper limb were used.

Exchange transfusion through peripheral vessels is effective and safe alternative to umbilical vessel route. This procedure can be safely used even in hemodynamically unstable neonates.

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INTRODUCTION

Neonatal jaundice is a common medical emergency in the Neonatal Intensive Care units, because bilirubin is a potentially neurotoxic substance. The limited ability of a neonate to metabolize unconjugated bilirubin predisposes the baby to bilirubin encephalopathy. Exchange transfusion, developed by Diamond more than fifty years back, is a cornerstone to prevent permanent brain damage[2].

ET by conventional "push-pull" technique through the umbilical vein is associated with certain complications, which do not occur in the peripheral route & the procedure is simple & safe.

Hospital based two year study was done from July 2002 to June 2004 to compare the two routes of ET.

MATERIALS AND METHODS:

This study was carried out on hospitalized patients at S.K. Institute of Medical Sciences in the Department of Neonatology (Neonatal Intensive Care Unit- NICU) which is a tertiary care centre in Kashmir. Cases were referred from Obstetric unit of the Institute, Children's Hospital & Lala Ded Hospital for Women of Medical College, Srinagar & various district headquarter hospitals of the valley.

Detailed antenatal, post-natal history, detailed examination of baby and various investigations including Hemogram, Red cell morphology, Reti count, Direct Coomb's test, Blood group & Rh-typing, Blood sugar & Calcium, Kidney function test, Serum electrolytes, Arterial blood gases & Blood culture were performed. Serum bilirubin estimation was done pre-exchange, 2hr, 6hr, 12hr & 24hr post-exchange. Cockington charts were used as guidelines for therapeutic intervention.

Brachial or radial artery was cannulated with a 24G cannula (Angiocath) under all aseptic precautions. A good peripheral vein or antecubital vein on the other side was cannulated with a 22G or 24G angiocath. Citrate phosphate

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***KEY WORDS** : Exchange transfusion (ET), Neonatal Hyperbilirubinemia, Peripheral Route.*

dextrose (CPD) fresh blood was used for the procedure & phototherapy was used pre- & post-exchange. Two operators carried out the procedure using aliquots of 5-10 ml on withdrawal & infusion. Three-way stop cocks were used on either side and arterial catheter flushed with 0.5ml of heparin solution (5 units/ml) after every 50ml. Procedure was performed under radiant warmer with monitoring of heart rate, respiratory rate, body temperature & oxygen saturation (by pulse oximetry). Repeated exchanges, if required, were done through the same lines and the catheters removed after 24 hrs.

Common causes for ET were idiopathic, prematurity, ABO incompatibility, Rh incompatibility, polycythemia & birth asphyxia. We preferred normal saline over plasma in partial exchange for polycythemia.

RESULTS:

Out of a total of 1275 admissions over a period of two years from July 2002 to June 2004, 305 (23.92%) had jaundice. Out of 305 patients, 198 patients (15.53% of total admissions and 64.91% of jaundice patients) needed exchange transfusion. Ninety patients (7.06% of total admissions and 45.45% of jaundice patients) were subjected to peripheral exchange transfusion. Male to female ratio was 65:35.

TABLE 1

	No of pts	Percentage
Total no of cases	1275	100
Jaundice cases	305	23.92%
Exchange transfusion needed	198	15.53%
Peripheral exchange	90	7.06% **(45.45% of jaundice patients)**

Gestational age of the babies was between 28-40 weeks (mean 34.5 weeks). Out of 90 peripheral exchange transfusions done, 67 (75%) babies were less than 2.5kgs weight & 23 (25%) were more than 2.5kgs. Out of the total 90 peripheral exchange transfusion cases, babies weighing above 2000gm were 32 (35%), 1500-2000gm were 18 (20%) and less than 1500gm were 40 (45%).

Total serum bilirubin was more than 20mg in 40 (45%) patients and less than 20mg in 50 (55%). Seventy babies (77.7%) needed one exchange transfusion, 15 (16.6%) needed two and 5 (5.7%) needed more than two exchange transfusions (Table2).

DISCUSSION

Peripheral vessels have been used as an alternative for exchange transfusion in selected patients. Very few centers have adopted this as an elective procedure.

Campbell and Stewart used a 22G catheter for blood replacement without any excessive hemolysis. Fox et al have shown that 24G catheter does not cause more hemolysis than either a 3.5 of 5 Fr umbilical catheter.

Conventional methods using umbilical vein cause immediate and delayed complications, which include tachycardia, bradycardia, cardiac arrest, pulmonary edema, introduction of infection through umbilical stump, portal hypertension, hemoperitoneum, intestinal perforation, air embolism & necrotizing enterocolitis.

TABLE 2

	Number	Percentage
Peripheral exchange	90	100
Weight(gm)		
2001 & above	32	35
1501-2000	18	20
<1500	40	45
Serum Bilrubin(mg)		
>20	40	45
<20	50	55
Number of exchanges		
One	70	77.7
Two	15	16.6
More than two	5	5.7
Route of Exchange		
Brachial	20	22.3
Radial	70	77.7

Peripheral exchange can cause complications like cerebral embolism by clot originating from radial artery. This can be prevented by using a small cannula, avoiding stasis & bubbles entering the artery, small flush volume & use of heparin.

We used brachial artery in 20 patients and radial artery in 70 patients without any major complications, except for slight blanching in two of radial group patients. This transient phenomenon reversed by itself. However, radial artery is a preferred vessel for peripheral ET.

By using peripheral vessels for exchange transfusion we can eliminate the complications of umbilical venous catheterization. GI complication is not a problem. Feeding can be continued compared to no feeding for 24hrs in umbilical route exchange transfusion.

We have found decreased chances of sepsis, complete exchange & more safety in peripheral exchange transfusion. Cost-wise peripheral exchange transfusion is very cheap as we need only two angiocaths, two stop-cocks & two 10ml syringes as compared to a complete exchange set (vygon) as is used for umbilical route. Also temperature control is found to be better as the body of baby is not to be exposed. Same advantages with ET have been seen by Satish Saluja, et al.

CONCLUSION

Exchange transfusion through peripheral vessels is quite effective & safe elective alternative thus avoiding likelihood of severe complications related to umbilical vessel catheterization. The flow in artery is free & blood can be easily removed & re-infused through the vein. This procedure can be used even in hemodynamically unstable neonates. This leads to higher safety profile with respect to cardiorespiratory problems associated with the procedure.

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Original Article

EFFECT OF GENERAL ANAESTHESIA AND SURGERY ON NEUTROPHIL PHAGOCYTIC FUNCTION

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ABSTRACT

In this study assessment of the effects of volatile anaesthetic agents like halothane and isoflurane on the neutrophil function of patients undergoing surgery and correlation of the extent of surgical trauma and anaesthetic exposure with phagocytosis and blood counts was done in 60 patients divided into 2 groups A and B of 30 patients each on basis of degree of surgical trauma and anaesthetic exposure. Group A(n=30) underwent cholecystectomy (moderate surgical trauma and anaesthetic exposure), out of which subgroup A1(n=15) recived halothane 0.5% and subgroup A2(n=15) received isoflurane 0.4%. Group B(n=30) underwent inguinal hernioraphy(mild surgical trama and anaesthetic exposure), out of which subgroupB1(n=15) received halothane 0.5% and subgroupB2(n=15) received 0.4% isoflurane. Three parameters namely total leucocyte count (TLC), differential leucocyte count (DLC) and phagocytic index (PI) were studied in each patient before and after anaesthesia and surgery are over. Preoperative values were taken as control to which postoperative values were compared. Data was statistically analysed by students t test. TLC showed highly significant elevation($p<0.001$) postoperatively in both the groups and with both the agents. DLC showed highly significant elevation in terms of neutrophils postoperatively ($p<0.001$) in both the groups and with both the agents. Phagocytic index showed highly significant depression ($p<0.001$) in moderate surgical trauma and anaesthetic exposure group only and among the volatile agents it was only halothane which resulted in highly significant depression of phagocytosis post operatively ($p<0.001$).

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INTRODUCTION

The role of anaesthesia in postoperative infections is ill defined. Basically the immune response to anaesthesia and surgery is a beneficial reaction needed in local defence and wound healing, and in preventing body from making auto antibodies against its own tissues. The response may , however contribute to the development of postoperative infection[1]. Neutrophils act as first line of defence against any infection in the body. The functional activity of these cells is reported to be effected by various anaesthetic agents . The present study was conducted to assess the effect of anaesthetic agents i,e. Nitrous oxide, Halothane and Isoflurane on neutrophil functions in patients undergoing mild and moderate surgical trauma and anaesthetic exposure.

MATERIAL AND METHODS

Sixty patients of either sex in age group of 16-60 years and belonging to ASA grade I and II were included in the study. Patients having any systemic disease or having received antibiotics, immunosuppresants or blood transfusion before surgery were excluded. No premedicants were administered to the patients. The patients were divided into two major groups A & B with 30 subjects each on the basis of the degree of surgical trauma and anaesthetic exposure (Mild and Moderate). Each group was further divided into two sub groups A1,A2 and B1,B2 each having 15 subjects on the basis of type of anaesthetic agent used.

Patients of group A1 and A2 underwent cholecystectomy a moderate surgical trauma procedure whereas patients of group B1 and B2 underwent inguinal hernioraphy a mild surgical trauma procedure. Patients of group A1 and B1 received 0.5% halothane, nitrous oxide and

KEY WORDS : *Anaesthetic agents, Neutrophil functions, phagocytosis*

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oxygen., whereas patients of group A2 and B2 received 0.4% isoflurane, nitrous oxide, and oxygen.

Collection of blood samples: 10 ml of blood sample from each patient was collected by venipuncture in heparinized tubes 30 minutes before induction of anaesthesia and 10 minutes after extubation.2ml of blood was collected by same venepuncture at similar timings in EDTA vials for TLC and DLC estimation. The blood samples were immediately sent to the laboratory and processed.

Table -1

Comparison of changes in TLC counts in group A and B

STAGE	TLCx10^9 per lite GROUP A Means±SD	GROUP B Mean±SD	t	p	Remarks
30 minutes Before Induction	7.21+1.26	7.30+0.93	0.31	<0.80	NS
10 minutes After extubation	9.13+1.58	8.32+0.74	2.54	<0.02	S

NS-Not Significant. S-Significant

Isolation of neutrophils: Neutrophils were isolated from blood by density gradient sedimentation first by dextran 500 and followed by histopaque . Briefly 6% dextran 500 solution was added to 10 ml of blood in the ratio of 2:1 and the solution was kept for 1 hour at room temperature. Supernatant plasma was aspirated and centrifuged at 275 g to get rid of platelets. The sedimented pellet was again subjected to density gradient centrifugation using histopaque at 1200g for 20 minutes. The sediment was collected and hypotonic saline solution was added to the pellet . RBC's got lysed and the tonocity of the cells was restored immediately using phosphate buffered saline (PBS) . Neutrophils were washed thrice in PBS and were finally suspended in RPMI 1640 medium. Cell concentration was determined and adjusted to 5x10 cells/ml.

Determination of phagocytic index : Equal volumes of 0.5ml of opsonized zymosan and neutrophil suspension were dispensed in 0.5ml of human AB serum. The mixture was incubated in a shaker water bath at 37·C for 30 minutes.0.1 ml EDTA/ saline solution was added to the tubes and the tubes were centrifuged at 300 g for 10 minutes. The supernatant was discarded and thin smears were prepared from the pellet. The smears were air dried and stained by Lieshmans stain . The slides were examined under light microscope using 100x oil immersion lens and 10x eye piece for presence of ingested particles by neutrophils. 100 cells were examined and total number of particles ingested by 100 cells was determined and was taken as Phagocytic index (PI). Data was statistically analysed by students t test

RESULTS

The mean age (in years)of patients in group A was 44.2±6.53 and that in group B was 50.46±4.59. The mean weight (in kgs) of patients in group A was55±7.84 and that in group B was 55.6±7.02. It was observed in this study that total leucocyte count showed significant elevation 10 minutes after extubation in both the groups A and B when compared with baseline values (Table 1). However, the elevation observed in group A was more significant than group B (p<0.02), when compared to each other. So more elevation of TLC was observed in moderate surgical trauma and anaesthetic exposure than mild surgical trauma and anaesthetic exposure. With respect to volatile agents used it was seen that 0.5% halothane and 0.4% isoflurane caused statistically similar elevation of TLC 10 minutes after extubation, so the two volatile agents had a similar impact on TLC.

In our study neutrophil count showed highly significant elevation 10 minutes after extubation in both groups A and B(p<0.001) when compared to baseline values. (Table 2) However, elevation observed in group A was more as compared to group B(p<0.001).So more elevation of neutrophil counts was seen in case of moderate surgical trauma and anaesthetic exposure than mild surgical trauma and anaesthetic exposure. With respect to volatile agent used, it was seen that 0.5% halothane and 0.4% isoflurane caused statistically similar elevation of neutrophil count 10 minutes after extubation, thus both volatile agents had similar impact on neutrophil count.

Table -2

Comparison of changes in neutrophil counts in group A and B

STAGE	Neutrophils x10^9 per lite GROUP A Means±SD	GROUP B Mean±SD	t	p	Remarks
30 minutes Before Induction	4.05+1.00	4.22+0.62	0.79	<0.50	NS
10 minutes After extubation	6.06+1.74	4.96+0.48	3.34	<0.001	HS

NS-Not Significant. HS- Highly Significant

Phagocytic index showed highly significant (p<0.001) depression 10 minutes after extubation in group A. In case of group B this depression was statistically insignificant (p>0.01). (Table 3) So in moderate surgical trauma and anaesthetic exposure there was highly significant depression of phagocytosis as compared to mild surgical trauma and anaesthetic exposure. With respect to volatile agents it was observed

Table -3

Comparison of changes in Phagocytic index in group A and B

STAGE	Phagocytic Index GROUP A Means±SD	GROUP B Mean±SD	t	p	Remarks
30 minutes Before Induction	16.58+0.42	16.66+0.44	0.72	<0.30	NS
10 minutes After extubation	16.22+0.27	16.50+0.41	3.12	<0.01	HS

NS-Not Significant. HS- Highly Significant

that 0.5% halothane caused highly significant depression of phagocytosis and in case of 0.4% isoflurane insignificant depression was seen. (Table 4)

Table -4

Comparison of changes in Phagocytic index in subgroups A1 and A2

STAGE	Phagocytic Index GROUP A1 Means±SD	GROUP A2 Mean±SD	t	p	Remarks
30 minutes Before Induction	16.68+0.30	16.49+0.44	1.30	<0.10	NS
10 minutes After extubation	16.10+0.11	16.34+0.36	2.14	<0.05	S

NS-Not Significant. S-Significant

DISCUSSION

The results of this study indicate that TLC showed significant elevation postoperatively in both mild and moderate surgical trauma and anaesthetic exposure and with both agents namely halothane and isoflurane. Neutrophil counts also showed significant elevation postoperatively in both types of exposures and with both the agents used. With respect to phagocytic index ,it was observed that there was highly significant depression of phagocytosis in group A only and with halothane only. Our results are in accordance with study by Khan et al.(1995), who observed statistically significant elevation in TLC postoperatively and this elevation was more in case of patients who underwent major surgical trauma. Our results are also in agreement with Theodore et al(1976), who observed marked rise in neutrophil count postoperatively and with different agents i.e., halothane, enfurane and morphine, the change seen in neutrophil count was similar.

Our findings are also compatible with Edwards et al(1990), who observed statistically significant leucocytosis in postoperative period and this increase was mainly due to an increase in neutrophils.Our findings are also in accordance with Khan et al(1995), who observed statistically significant ($p<0.01$) increase in recovery room neutrophil count after major surgery. Our findings are concomitant with William DW(1984), who observed effect of enflurane and isoflurane with or without N_2O on human polymorphonuclear leucocyte microbicidal function. He observed that only enflurane was able to inhibit microbicidal activity ($p<0.01$) as evidenced by chemiluminescence. Isoflurane in concentrations of 0.5% to 3% was unable to change polymorphonuclear leucocyte chemiluminescence. In our study also we observed that isoflurane caused insignificant depression of phagocytosis. Our findings are in agreement with Bardosi L et al(1985), who observed depression of Phagocytosis associated metabolic activity postoperatively for several days after halothane anaesthesia.Our findings are in accordance with Khan et al(1995) who observed that general anaesthesia with halothane 0.5% to 2% has a dose dependant effect on phagocytosis. Significant depression($p<0.01$) of phagocytosis was seen in patients undergoing major surgery with halothane. So degree of surgical trauma seems to have influenced phagocytosis and similarly we also found that phagocytosis was more depressed in case of major surgical trauma than minor surgical trauma.

Our results are also in agreement with Bruce et al(1975), who observed statistically significant inhibition of phagocytosis($p<0.05$) during aneasthesia in patients undergoing halothane aneaesthesia.

In our study we observed that halothane caused significant depression of phagocytosis while as with isoflurane this depression was insignificant, here our findings may be correlated with work by Miwako et al(1986), who have shown that halothane, isoflurane and enflurane all inhibit superoxide production and Ca ion mobilization in human neutrophils and there is possibility that different anaesthetic agents inhibit the mobilization of intracellular calcium to different extent.

Our findings are in accordance with Khan et al.(1995), who observed that General Anaesthesia with halothane 0.5% to 2% has a dose dependant effect on phagocytosis and this was seen to be significant ($p<0.01$) in major surgical trauma. So degree of surgical trauma seems to have influenced phagocytosis and similarly we also found that phagocytosis was more depressed in major surgical trauma and anaesthetic exposure than in the mild surgical trauma and anaesthetic exposure.

Although influence of raised catecholamines on our values cannot be ruled out, we have tried to minimize the effect of this response on our results by our sampling technique. The control sample was taken 30 minutes before induction and the postoperative sample was taken 10 minutes after extubation. The cathecholamine response to tracheal intubation and tracheal extubation is gone by this time as according to Shribman et al(1987)[10].

In attempting to control the nervous, respiratory and circulatory systems, the anaesthetists many drugs must be assumed to have the potential of blocking, modifying, changing and interacting with both the chemical messengers and cell receptors of the immune system. Although the exact mode of action of anaesthetic agents is unknown, there is growing evidence that there is cell membrane involvement[11]. We have concluded that anaesthesiologist needs to be aware of the immune system as a functional, integral system and to give it same consideration as is given to any other vital system. Besides that he has to optimize the anaesthetic management of patients with compromised immune function.

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Topical Ascorbic Acid after LASIK: short term effects

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ABSTRACT

Material & Methods: A parallel design, prospective randomized double masked placebo controlled clinical trial in which hundred patients more than 18 years of age with stable myopia of more than 1.5 diopters were enrolled. Preoperative visual acuity, corneal thickness and detailed slit lamp biomicroscopic examination were done. Patients were instructed to instill one drop of allotted drug (either ascorbic acid or placebo) four times daily along with the routine post LASIK medications for the three consecutive post-operative days. Visual acuity, corneal thickness, slit lamp biomicroscopy for corneal wound and interface, tolerance to drug and relief of pain was assessed on day one and day seven. Results were evaluated by preset questionnaires and comprehensive clinical examination on the day one and day seven.

There were no significant differences on day one and day seven in visual acuity, corneal clarity, corneal thickness and corneal wound healing ($p>0.05$).

Ascorbic acid for the first three days postoperatively after LASIK did not show any immediate clinical benefit over placebo.

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INTRODUCTION

Laser in situ keratomileusis (LASIK) with the 193 nm argon fluoride excimer laser is considered the modality of choice for correction of myopia.[1] Various studies have demonstrated free radical formation and polymorphonuclear cells in the laser ablated corneal tissue following excimer laser keratectomy.[2-4] These free radicals cause the peroxidation of fatty acids or the lipids of the cell membrane, which results in tissue damage.[5] The purpose of the present study was to evaluate the short-term effect of topical ascorbic acid, which is a major free radical scavenger, in patients who underwent LASIK surgery.

MATERIALS AND METHODS

Hundred patients attending our center's LASIK Lab for refractive surgery were taken for this randomized double blind placebo controlled clinical study. A brief medical history was noted to rule out local and systemic factors which could affect corneal sensation such as diabetes, leprosy, neurological & endocrinal disorders; use of drugs like sedatives, tranquilizers and alcohol; contact lens wear, trachoma and other corneal diseases, dry eyes, glaucoma, thyroid ophthalmopathy; and use of local medications (especially timolol). Informed consent was obtained from all the subjects and ethical committee's approval of the institute was obtained for the study. Preoperatively, all patients were assessed for uncorrected and best-corrected visual acuity (UCVA and BCVA), refraction, slit lamp examination for corneal thickness, clarity and anterior chamber evaluation. Central corneal thickness was also determined with ultrasonic pachymetry. Indirect ophthalmoscopy was done to rule out any retinal lesions. Keratometry, axial length, intraocular pressure were also measured.

Each individual who were keen to participate in the study were told about the role of ascorbic acid in LASIK surgery. The patients were advised to stop wearing contact lenses 15 days before a thorough work up for LASIK surgery was done. They were also advised to stop using eye makeup-kajal, eyeliner, and mascara to avoid any post-operative infection or deposits. Laser machine used was the Chiron-217C Technolas (Chiron Vision Corporation, Claremont, CA, USA). The Hansatome microkeratome was used for making the flap and the diameter of the ablation zone was 6.0mm.

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KEY WORDS : Ascorbic acid, controlled clinical trial, LASIK.

DRUG FORMULATION AND INSTILLATION

10% ascorbic acid in distilled water and placebo (distilled water) of identical color and volume were dispensed from the Ocular Pharmacy of our Centre in identical vials. Our trial was double masked by assigning random code number to all these identical vials. A number of similar looking droppers were tested for the drop size derived. From these, droppers were selected which gave a drop size of approximately 30±2.5 microlitre to give an approximate dose of 3mg of ascorbic acid per drop.

Along with the routine post-operative advice, patients were randomly allotted in two groups. Each was advised to instill the given drops in the operated eye 4 times a day for three days, starting in the immediate post-operative phase. All were instructed to instill the drug solutions into the lower conjunctival fornix by gently pulling the lower eyelid. No patching or contact lens was advised in post-operative phase. These patients were followed up on the 1st and 7th day after surgery. Post-operatively, visual acuity, slit lamp examination for epithelium, interface, corneal haze and ultrasonic pachymetry were assessed. Preset questionnaires were used to assess postoperative pain and the patients were asked to report any side effects like ocular pain or irritation after installation of the drug.

STATISTICAL ANALYSIS

Observations were recorded according to code of drug and were managed on an excel spreadsheet. Chi-square test, student's 't' test and paired 't' test were applied to detect the statistically significant difference between two pairs of group means. The analysis was done using STATA 7.0 intercooled version package. After the analysis was performed, data was decoded and results were interpreted accordingly.

RESULTS

The age of the cases and controls included in the study were 23.43±4.68 years (n=53) and 25.08±5.19 years (n=47) respectively. There were 33 (62.26%) females and 20(37.74%) males in cases and 32 (68.09%) females and 15 (31.91%) males in the control group with myopia ranging from -1.5 to -9.00 diopters (Mean 5.5 diopters). Patients of both the groups were age and sex matched. Both objective and subjective criteria were tabulated for grading the subjective responses. The objective criteria used were postoperative uncorrected visual acuity, corneal thickness, corneal wound healing and interface haze. Subjective criteria were tolerance to the drug and relief in post-operative pain. On comparison, it was found that there were no significant differences in effects of ascorbic acid and placebo on day one and day seven in visual acuity, corneal clarity, corneal thickness and corneal wound healing (p values non-significant).

DISCUSSION

With the progressive use of excimer laser in corneal ablation, researchers have tried to demonstrate the pathological and micro-structural changes occurring in the ablated surface of cornea after excimer laser ablation. Presence of free oxygen radical after excimer laser photoablation has also been demonstrated.[3] Excimer laser keratectomy increases the corneal temperature, decreases the super oxide dismutase activity of the aqueous, and induces lipid peroxidation in the superficial corneal Stroma.[4-5] Reactive oxygen-species induced apoptosis and necrosis in bovine corneal endothelial cells was demonstrated by Cho et al.[6] The presence of excessive amounts of free radicals that break through defence systems lead to oxidative damage and damage due to further corneal inflammation through pro-inflammatory, modulatory and toxic effects.[7] Jain et al found that intraoperative application of antioxidant, either 50% dimethyl sulfoxide or 1% superoxide dismutase, decreased light scattering following

Table No 1: Clinical and postoperative results

	Ascorbic acid group(N=53)	Placebo group(N=47)	p value
Demographic Data			
Age (yrs)	23.4±4.68	25.1±5.19	0.08
Gender (M:F)	20:33	15:32	0.54
Postoperative UCVA, N (%)			
Day 1			
6/12 or better	53 (100%)	47 (100%)	
6/6 or better	46 (86.8%)	44 (93.6%)	0.21
Day 7			
6/12 or better	53 (100%)	47 (100%)	
6/6 or better	50 (94.3%)	46 (97.8%)	0.35
Pachymetry (microns)			
Preoperative	518.5±31.7	516.2±33.4	0.72
Day 1	389.8±49.3	393.4±54.3	0.72
Day 7	391.7±50.3	390.8±54.5	0.93
Wound/interface haze, n(%)			
Day 1	15 (28.3%)	11 (23.4%)	0.57
Day 7	2 (3.7%)	3 (6.4%)	0.44
Postoperative pain, n (%)	22 (41.5%)	18 (38.3%)	0.74
Irritation with drops, n(%)	25 (47.2%	17 (36.2%)	0.90

excimer keratectomy.[8] Ascorbic acid has a small molecular weight and accumulates in ocular tissues at a concentration several times higher than the plasma level.[9, 10] No controlled study to determine whether the reduction of oxidative damage by ascorbic acid improves postoperative recovery and course after LASIK was available in the literature.

Reduced tear fluid ascorbic acid level on the first postoperative day after PRK, transepithelial PRK, and LASIK has been demonstrated. [11] Ascorbic acid is the major scavenger of super oxide radicals in human tears and hence we were prompted to under take the present study to determine the role of ascorbic acid after excimer laser surgery. Topical anti-inflammatory agents either steroidal or nonsteroidal are routinely used in post-operative ophthalmic patients to reduce the inflammatory response. Side effects include delayed wound healing, opportunistic infections, cataract, and glaucoma etc.[12] With a view to overcome the above side effects, various nonsteroidal anti-inflammatory drugs have also been tried. [13] Ascorbic acid when applied as 10% topical drops has been found to be safe, non-irritating and nontoxic.[10, 14]

Topical ascorbic acid has been effective in decreasing the stromal necrosis, which occurs during the delayed phase in cases with alkali injury. This has been attributed to the antioxidant and pro-collagen synthesis properties of ascorbic acid.[14] Presence of free radicals after laser ablation can affect the postoperative course in patients undergoing refractive surgery. Degradation products and the free radicals can lead to attraction of inflammatory cells at the site of ablation. This leads to immediate postoperative problems like pain and interface haze. Kasetsuwan et al evaluated the effect of topical ascorbic acid on the oxygen free tissue damage and the inflammatory cell influx in rabbit cornea after excimer laser keratectomy.[15] They noted significant reduction in lipid peroxidation and polymorphonuclear cell counts in the superficial cornea of ascorbic acid treated eyes compared with control eyes. The decreased damage by free radicals and effective reduction of the acute inflammatory reaction could lead to less pain and corneal haze in the postoperative period. In our study there was no difference in terms of postoperative pain or interface haze whether patients were given ascorbic acid or placebo topically for the first three days after LASIK. The effect of the free radicals and inflammatory cells on the long-term stability of the refractive surgery is not clear. It may be possible to decrease the incidence and amount of regression of the refractive effect of surgery by reduction in the free radical induced injury with the postoperative use of ascorbic acid. We have used the drug only for three days and the follow-up (one week) is not sufficient enough to comment on the long-term results. It will also be interesting to evaluate the results of long-term postoperative use of ascorbic acid in cases undergoing LASIK or other laser refractive surgeries especially laser-assisted sub-epithelial keratectomy (LASEK) and photo-therapeutic keratectomy (PTK). Ascorbic acid acts as a cofactor in the maturation and differentiation of collagen, which influences the corneal wound healing process. Therefore long term effects on corneal clarity and regression may be important parameters to assess the effect of ascorbic acid. The effect on collagen metabolism may also have a bearing on the development of post LASIK ectasia and therefore further studies in this direction are warranted.

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Original Article

OCULAR MANIFESTATIONS IN ANAEMIA-A CLINICAL STUDY.

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ABSTRACT

The present study was conducted in 100 patients diagnosed with anaemia due to various diseases. The prime aim was to study the involvement of different parts of eye in anaemia and the relation of ocular manifestations with severity of anaemia. Conjunctival pallor was the commonest ocular manifestation of anaemia seen in 74% cases. Retinal abnormalities were the second commonest ocular manifestation observed in 16% cases. Posterior pole pallor was third commonest ocular manifestation seen in 14% cases. Thrombocytopenia was present in 38 patients out of 100 and retinal haemorrhages were commoner in this group (34.2%) compared to group without thrombocytopenia(1.65%).

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MATERIAL AND METHODS

In present study 100 patients with anaemia were studied. Every patient underwent general physical examination and complete blood counts. The patients with hypertension and diabetes were excluded from study. The patients with anaemia underwent detailed ocular examination and those with positive fundus findings were subjected to fundus photography with the Topcon fundus camera. The distribution according to age, sex and grading of severity of anaemia are shown in Table I & II

TABLE I: DISTRIBUTION OF AGE AND SEX

AGE	< 15yrs	>15 yrs
	30	70
SEX	Male	Female
	50	50

TABLE II : DISTRIBUTION AS PER GRADING OF ANAEMIA

GRADING	Severe	Moderate	Mild
HAEMOGLOBIN	<6gm/dl	6-<10gm/dl	10-12.5gm/dl
TOTAL SUBJECTS	38	40	22

OBSERVATIONS-

The observations made from the study are shown in table III, IV, V, VI, VII & figures 1,2 &3.

TABLE III : DISTRIBUTION OF FINDINGS IN ANAEMIA WITH SEVERITY

AGE < 15 YRS

SEVERITY	SEVERE	MODERATE	MILD
Total Cases	9	13	8
Conjunctival pallor	9 (100%)	12(92.3%)	0
Retinal abnormalities	0	0	0
Posterior pole pallor	2(22.2%)	0	0

TABLE IV : DISTRIBUTION OF FINDINGS IN ANAEMIA WITH SEVERITY AGE > 15 YRS

SEVERITY	SEVERE	MODERATE	MILD
Total case	29	27	14
Conjunctival pallor	29(100%)	24(88.8%)	0
Retinal abnormalities	13(44.8%)	3(11.1%)	0
Posterior pole pallor	12(41.3%)	0	0

TABLE V :Sex distribution & retinal abnormalities with different grades of anaemia.

	TOTAL SUBJECTS			WITH FINDINGS		
Severity	Severe	Moderate	Mild	Severe	Moderate	Mild
Male	19	20	11	7(36.8%)	2(10%)	0
Female	19	20	11	6(31.5%)	1(5%)	0
Total	38	40	22	13(34.2%)	3(7.5%)	0

TABLE VI :Relation between anaemia, thrombocytopenia and retinal abnormalities

PLATELET COUNTX10⁹	HB/DL	TOTAL PTS.	PTS.WITH RETINAL HAEMORRHAGES
<50	<6	17	8(47%)
	6-<10	5	2(40%)
	10-12.5	0	0
50-100	<6	6	2(33%)
	6-<10	8	1(12.5%)
	10-12.5	2	0
>100	<6	15	1 (6.6%)
	6-<10	27	0
	10-12.5	20	0

TABLE VII : Incidence of different retinal abnormalities with severity of anaemia

		HEMORRHAGES						
SEVERITY OF ANAEMIA	DISC EDEMA	Flame-shaped	Dot and blot	Sub Hyaloid	Haem. With White Centre			
Severe	2.6%	28.9%	15.7%	21%	13.1%	10.5%	7.85%	10.5%
Moderate	0%	7.5%	0%	0%	0%	0%	0%	2.5%
Mild	0%	0%	0%	0%	0%	0%	0%	0%

DISCUSSION:

In present study,conjunctival pallor was the commonest ocular manifestation of anaemia seen in 74 out of 100 cases. Retinal abnormalities were the second commonest ocular manifestation seen in 16 out of 100 cases .Posterior pole pallor was seen as the third commonest ocular manifestation seen in 14 patients out of 100.

Duke-Elder & Dobree have explained that in common with the mucous membranes a phenomenon in the conjunctiva producing the "ivory eye" is so commonly seen that this sign may be of little value for the ophthalmologist.[1]

Lange et al have explained that the haematological disorders can manifest in all structures and adnexa of the eye. The most common manifestations are conjunctival pallor and haemorrhages, intra-retinal haemorrhages and the cotton wool spots .Retinal infiltrates ,manifestation in the lids , anterior segment , optic nerve , orbit and adnexa are rare.[2]

Retinal abnormalities in our study were seen in the form of hemorrhages, tortuous veins , exudates and disc oedema.

Flame -shaped haemorrhages being the commonest type of haemorrhage followed by sub - hyaloid haemorrhage.

Holt J.M & Gordensmith studied 63 patients with anemia and noted that flame shaped haemorrhages where the commonest type of haemorrhages.[3]

We also observed disc edema in one case diagnosed as iron deficiency anaemia with normal platelet count. A similar case was reported by Knizley et al in 1969[4]

No retinal abnormalities were seen in age less than 15 yrs in our study

There has been slight male preponderance which can be explained on the basis of associated thrombocytopenia with megaloblastic anaemia in males.

It was found that there is enhanced effect on manifestation of retinal haemorrhages when anaemia and thrombocytopenia are present. In patients with severe anaemia and platelet count $<50X10^9$, number of patients with retinal haemorrhages were statistically significant (P value <0.05) as compared to patients with severe anaemia and platelet count $>100x10^9$ (P value 17.66).

Rubenstein and Yanoff has also shown similar results i.e., retinal abnormalities get enhanced in presence of thrombocytopenia.[5]

In our study retinal abnormalities were more in severe anaemia (34.2%) than in moderate anaemia (7.5%) and there has been no case of retinal abnormality in mild anemia.

Merin S.& Freund have also found that in severe

[illegible]

13.5%

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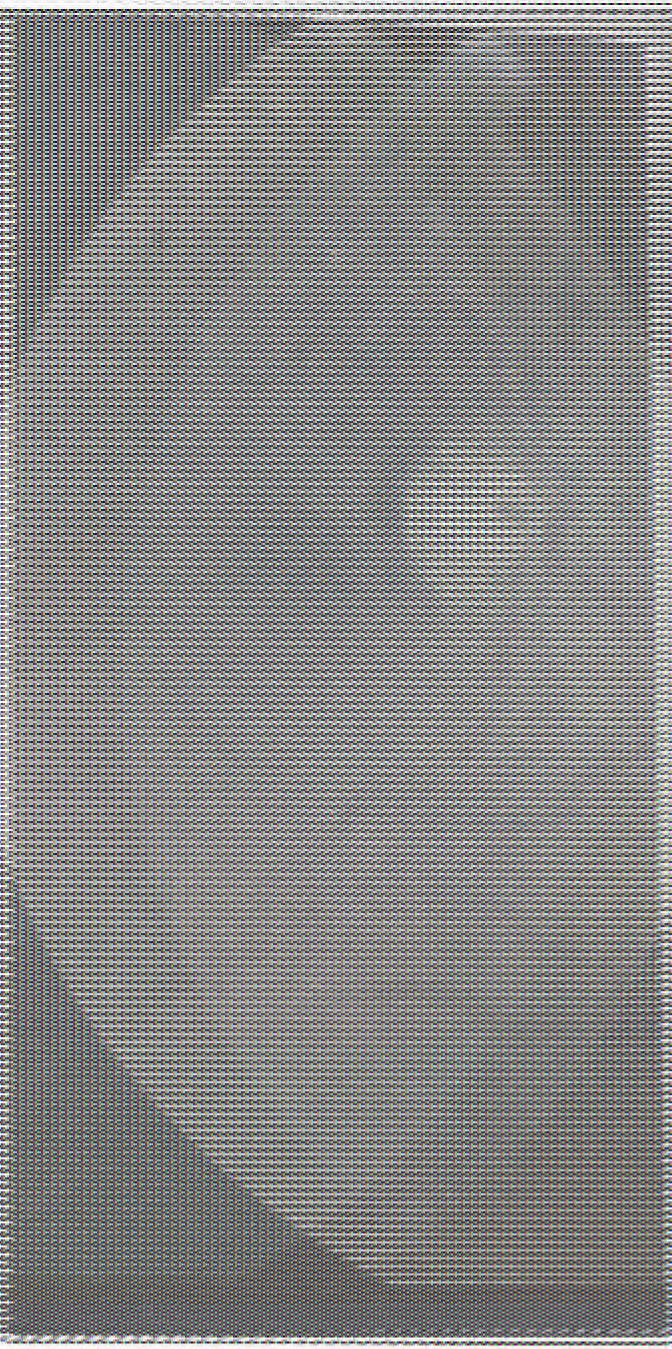

[illegible] dimorphic anaemia.

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Occult Osteochondral Fracture in Knee

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ABSTRACT

Occult osteochondral fracture with normal radiographs and MRI scan is extremely rare. This radiological exception to the accuracy of imaging calls for excellence in the exercise of clinical sense, judgment and decision rather than blind dependence on the normality of even sophisticated investigations in the presence of conflicting clinical picture. We are reporting a case of an occult osteochondral fracture of the lateral femoral condyle, which precisely reflected this concept. Arthroscopic intervention and removal of the loose osteochondral fragment alleviated the symptoms promptly and led to a happy result.

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Introduction

Osteochondral fractures of knee result from either a direct peripheral shear force or an indirect combination of rotation and compression[1]. The former could involve a substantial peripheral osteochondral fragment, while the latter could lead to central lesions of medial and lateral condyles in adolescents. The role of tibial spine in central intercondylar lesions is debatable[1,2]. MR imaging is accepted as the gold standard in the diagnosis and management of osteochondral lesions[1-5]. Even though the central lesions in general are less substantial, it is exceptional that both plain radiographs and MR imaging fail to demonstrate the fragment and consequent defect in the articular cartilage, especially when the lesion is of sufficient size. We are reporting an occult osteochondral fracture, which precisely matched this radiological exception- a situation, which calls for excellence in the exercise of clinical sense and judgment rather than blind dependence on the normality of even sophisticated investigations in the presence of conflicting clinical picture.

Case report

A 14- year old girl presented to the Accident department with a history of twisting her right knee while trying to climb over a fence. She complained of pain over medial aspect of the knee and associated swelling. She also had difficulty in weight bearing. Examination of the knee revealed Grade II effusion, slight tenderness over medial joint line and a restricted range of movements of 0"-40". Standard X rays of the knee were normal. She was treated with wool and crepe bandage. After a week, she still had pain and difficulty in weight bearing, tender medial joint line and restricted flexion of 90". She had a course of physiotherapy with no tangible benefit. On subsequent review in orthopaedic clinic, she complained of persisting pain over medial aspect of right knee, occasional clicking, but no locking or giving way. On examination, she had minimal wasting of quadriceps, no effusion, normal patellar tracking and marked tenderness over medial aspect of the knee. Collateral and cruciate ligaments were clinically intact. McMurray's test was negative with a range of movement from 0"-100".

MRI scan was found to be normal. Because of persisting symptoms, it was decided to schedule her for arthroscopy of the right knee.

Arthroscopy revealed Grade I fibrillation on the superolateral part of patellar articular surface, normal menisci and anterior cruciate ligament. A loose body was found in front and medial to anterior cruciate ligament in the intercondylar region. A healed crater, which was relatively smooth, was noted on the (non-weight bearing) lateral aspect of the lateral femoral condyle.

KEY WORDS :Occult Osteochondral fracture Lateral femoral condyle Knee Loose body

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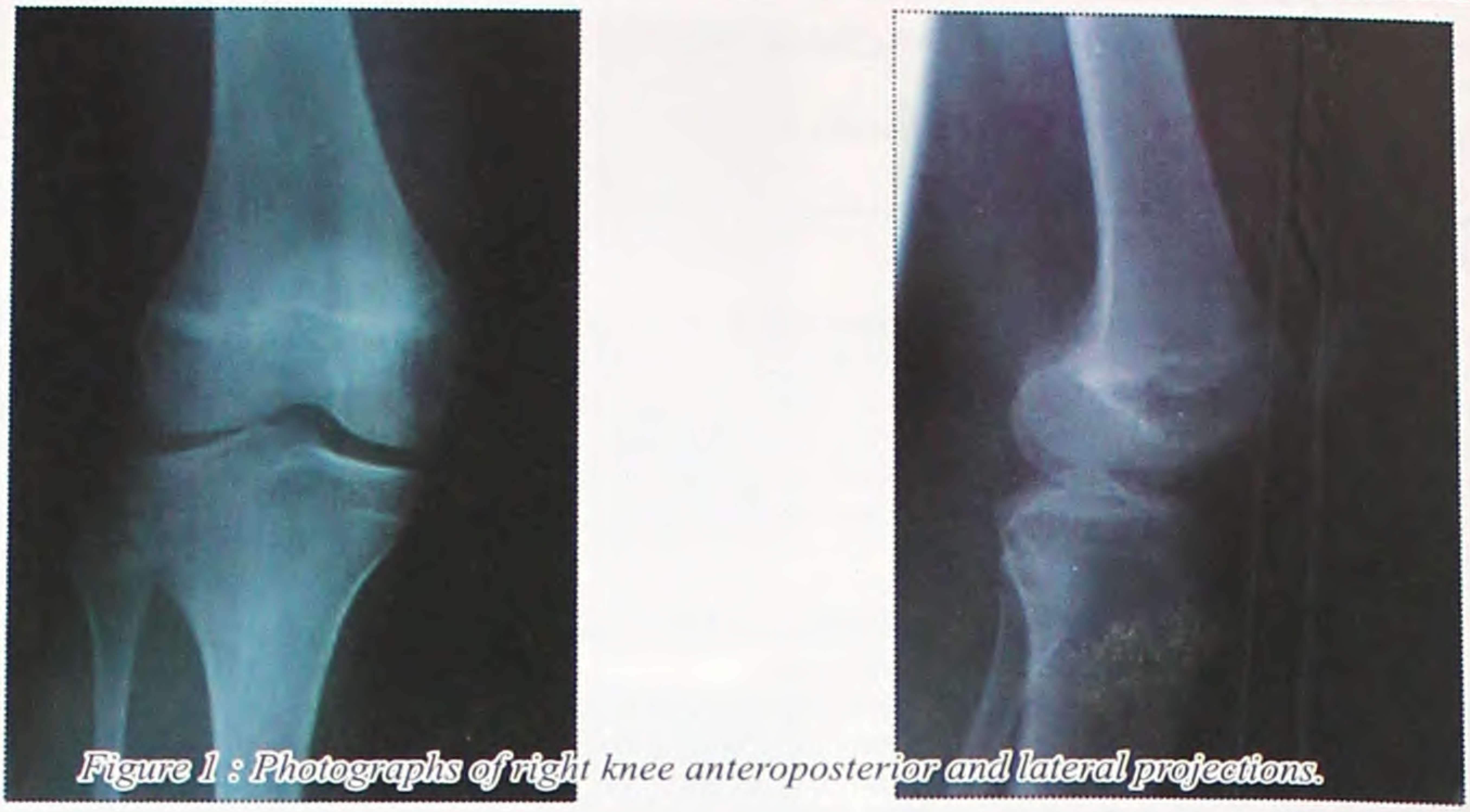


Figure 1 : Photographs of right knee anteroposterior and lateral projections.

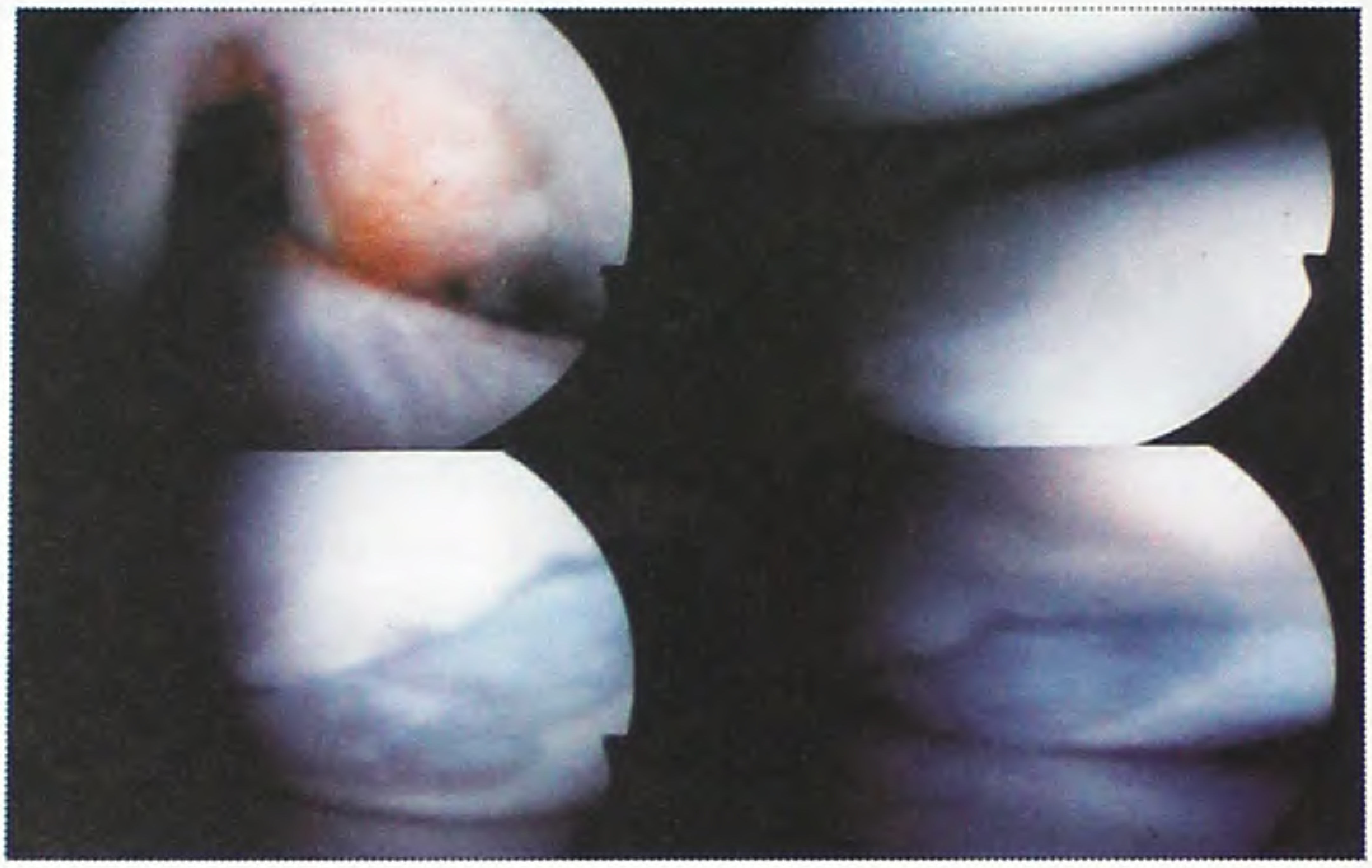
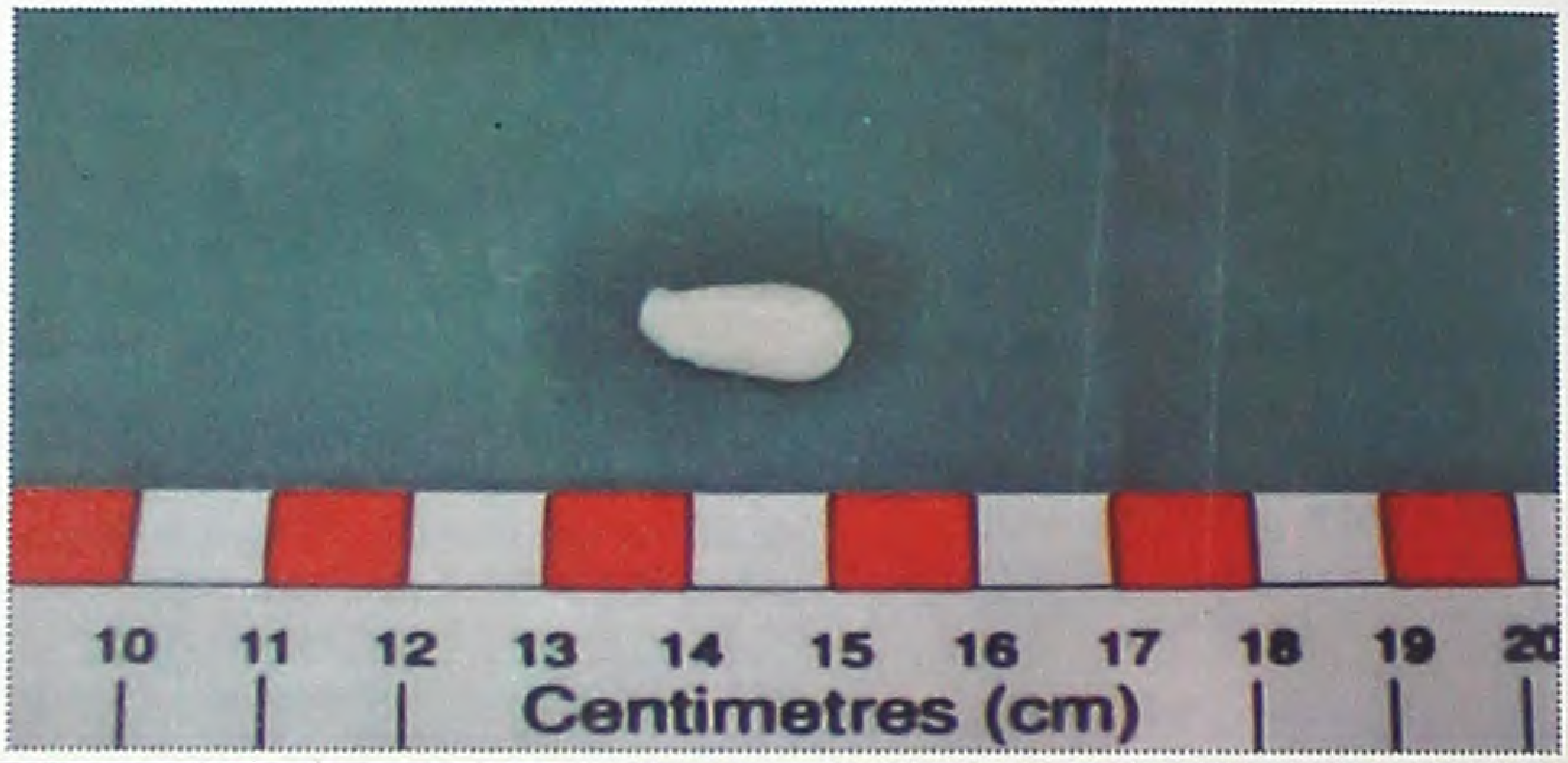


Figure 2 : Photographs during arthroscopy, showing the loose body medial to ACL and osteochondral defect in the non-weight bearing area of the lateral femoral condyle.


10
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Centimetres (cm)

Figure 3. Photograph of the loose body after arthroscopic removal.

Arthroscopic appearances were consistent with an osteochondral fracture, which sheared off from the non-weight bearing lateral aspect of the lateral femoral condyle and lodged in the medial intercondylar region. Following arthroscopic removal of the loose fragment, she made a swift uneventful recovery with complete resolution of symptoms and regained full function of the knee.

Discussion

Osteochondral fracture is the most common cause of a loose body in an otherwise normal knee before epiphyseal closure[6]. Concomitant association of ligamentous and meniscal injuries and vice versa influence the management of symptomatic osteochondral fractures. The differential diagnosis of an osteochondral loose body includes osteochondritis dissecans with complete separation of an osteochondral segment from the adjacent normal articular cartilage. Fairbank[6], Aichroth[7,8] and Smillie[9] subscribed to the aetio-patholological basis of fracture in osteochondritis dissecans. Osteochondral fractures are frequently found on the weight bearing surfaces of the femoral condyles, while osteochondritis dissecans is common on the inner aspect of the medial femoral condyle.

The understated, underdiagnosed and undertreated picture of osteochondral fractures has changed by the recent explosion of sporting enthusiasm and injuries, expansion of sensitive diagnostic magnetic imaging and evolution of surgical advances and techniques. Plain x-rays are of limited value because chondral fractures are not at all visualised and even a large osteochondral fragment may have only a small ossific component. Therefore x-rays merit careful assessment for telltale signs of even the smallest ossified fragment.

MR imaging is sensitive, specific and accurate and represents a most valuable non-invasive imaging modality of choice in the diagnosis, assessment, therapeutic planning and monitoring of osteochondral fractures and lesions and avoids unnecessary interventional procedures. Excellent contrast and spatial resolution coupled with multiplanar image reconstruction ensures the unsurpassed superiority of MR imaging. The state of the articular cartilage is the key determinant in the management of osteochondral lesions. MR images not only elucidate the nature, site, size, surface, subchondral status and stability of the lesion relative to weight bearing, but also delineate and distinguish an intact articular cartilage, an affected segment without a defect, a defect with partial detachment or a totally detached loose body.

Hogerle et al[3] correlated 3-D MRI with subsequent arthroscopy and found good demonstration of normal anatomical structures and excellent reliability for the diagnosis of serious cartilage damage (sensitivity 100%, specificity 100%), but sub-optimal for mild cartilage lesions (sensitivity 60%, specificity 99%).

Riel et al[4] prospectively compared MRI and arthroscopy within 48 hours of imaging and concluded that the sensitivity, specificity and accuracy for full thickness articular cartilage lesions are 73, 100 and 92 per cent respectively and therefore is a safe and valuable adjunct to clinical examination and efficient preoperative planning.

Zampa et al[5] concluded that opposed-phase of GRE, quick sequences, available on all MR systems, are superior to conventional T1 weighted images in detecting occult injuries of the knee. Injuries are more conspicuous because their signal intensity is lower due to simultaneous presence of fat and water protons, which is typical of bone trauma. GRE sequences make a useful and rapid complement to T1/T2-weighted fat saturation acquisitions in the study of the post-traumatic knee

Discrepant findings between MRI and arthroscopy may be due to insufficient MRI technique, inexpert interpretation or insufficient arthroscopic evaluation. Close cooperation between radiologists and surgeons improves the understanding of their respective methods and enhances the accuracy. Fixation of osteochondral fragment is recommended in large accessible weight bearing areas. However, if surgery is delayed for more than 10 days as in our case, fixation is contraindicated as the articular defect has already started to fill with fibrocartilage[11].

Our case has several unique features. Standard roentgenograms did not demonstrate any abnormality. MRI neither identified the condylar defect, nor the loose body. Presence of effusion on initial presentation and persisting symptoms raised a high index of suspicion of an occult osteochondral fracture, not evident on radiographs and MRI scan. Arthroscopy confirmed the clinical suspicion and revealed a loose osteochondral fragment from the non-weight bearing area of the lateral condyle of femur, lodged anterior to the anterior cruciate ligament in the intercondylar region. Arthoscopic removal of the offending loose osteochondral fragment led to prompt relief of symptoms.

Our case clearly illustrates that while imaging normality and interpretation may have a high degree of accuracy, sensitivity and specificity, imaging is not a substitute to clinical sense. Clinical awareness of the limitations of even the most advanced and sophisticated investigations is an essential ingredient of sound clinical acumen and judgment and a hallmark of a good clinician. Clinician should be alert to protect himself from being lulled into a false sense of security and inaction because of investigational normality.

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Case Report

Incidental detection of a Wandering spleen by Technetium – 99m sulfur colloid imaging in a patient undergoing evaluation for abdominal pain.

Shoukat. H. Khan, Tanveer.A.Rather.

ABSTRACT

Wandering spleen can be an elusive diagnosis requiring a high degree of clinical suspicion. Abdominal ultrasound, computerized axial tomography and nuclear imaging are often used to confirm the diagnosis. The case presented is that of a patient who had abdominal pain for last 2 months and was by chance found to have a wandering spleen on Technetium – 99m sulfur colloid imaging.

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Introduction.

Wandering spleen is an uncommon condition which results due to an intrauterine developmental disorder of the spleenic pedicle leading to its unusual length and extreme mobility[1].A pre operative diagnosis of this condition requires a high degree of clinical suspicion. Early diagnosis of this condition is important for correct interpretation of any future symptoms and also for the pre-emptive management of the possible associated complications like torsion, infarction, gangrene, trauma, and obstructive symptoms. In a patient suspected of having a wandering spleen the diagnosis can be confirmed by investigating tools like abdominal ultrasonography (USG), computerized axial tomography (CAT), magnetic resonance imaging (MRI), arteriography, nuclear imaging and Doppler scanning[2].It is commonly seen in women in the second to fourth decade[3].The usual positions are pelvis, pelvi- abdominal region or in the retroperitonium[4].Patients may be asymptomatic or present with abdominal pain which can be of acute onset or of a chronic nature. The pain is usually due to the associated complications[5].Wandering spleen may be associated with Beckwith-Wiedemann syndrome, gastric volvulus, Gauchers disease and congenital diaphragmatic hernia[6,7,8]

Case Report.

A 40 years old married male presented to the department of gastroenterology at the Sher-I-Kashmir Institute of Medical Sciences with a 2 months history of upper abdominal pain. Patient had a 20 years past history of undergoing some abdominal surgery the details of which could not be ascertained as no records were available. He also gave a history of jaundice 6 years back. His bowel and micturation habits were normal. He had a good appetite. Patient was of good built with a weight of 61 kilograms. Except for a midline operation scar on the abdomen his general and systemic examinations were unremarkable. On laboratory

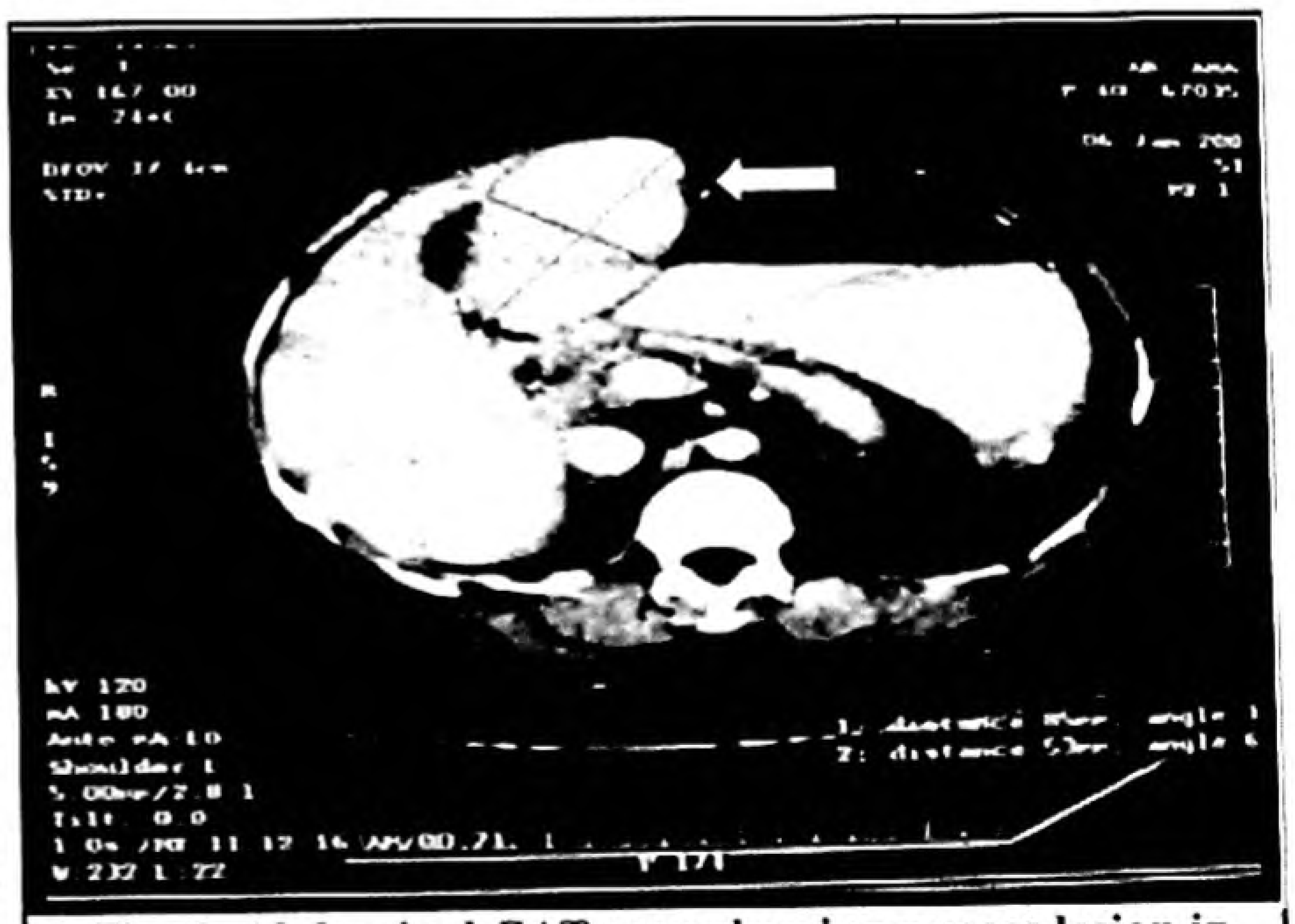

Fig: 1. Abdominal CAT scan showing a mass lesion in relation to the left lobe of liver with normal enhancement.

KEY WORDS : *Wandering, spleen, Technetium.*

examination his haemogram, liver function tests, kidney function tests were within normal limits. Abdominal USG revealed an ill-defined hyperechogenic area adjacent to the gallbladder. Abdominal CAT done one week later revealed a mass lesion (8.5 by 5.3 centimeters) in relation to the left lobe of liver with normal enhancement (Fig:1). A subsequent Technetium – 99m (Tc-99m) sulfur colloid liver scan revealed a liver of normal shape and size with a uniform tracer uptake, however a well defined area of abnormal tracer concentration was seen below and adjacent to the left lobe of liver (Fig:2). The spleen was not visualized in its normal position. A diagnosis of wandering spleen was established. Patient was rescanned using Tc-99m Mebrofenin (Fig:3). The liver and gallbladder were visualized. The post fatty meal gallbladder ejection fraction was reduced at 31.1%. Tc-99m Mebrofenin unlike Tc-99m sulfur colloid being a hepatocyte agent concentrate as expected in the reticulo endothelial cells of the ectopic wandering spleen. The patient was referred back to the department of gastroenterology with a diagnosis of wandering spleen and a possible chronic acalculous cholecystitis.

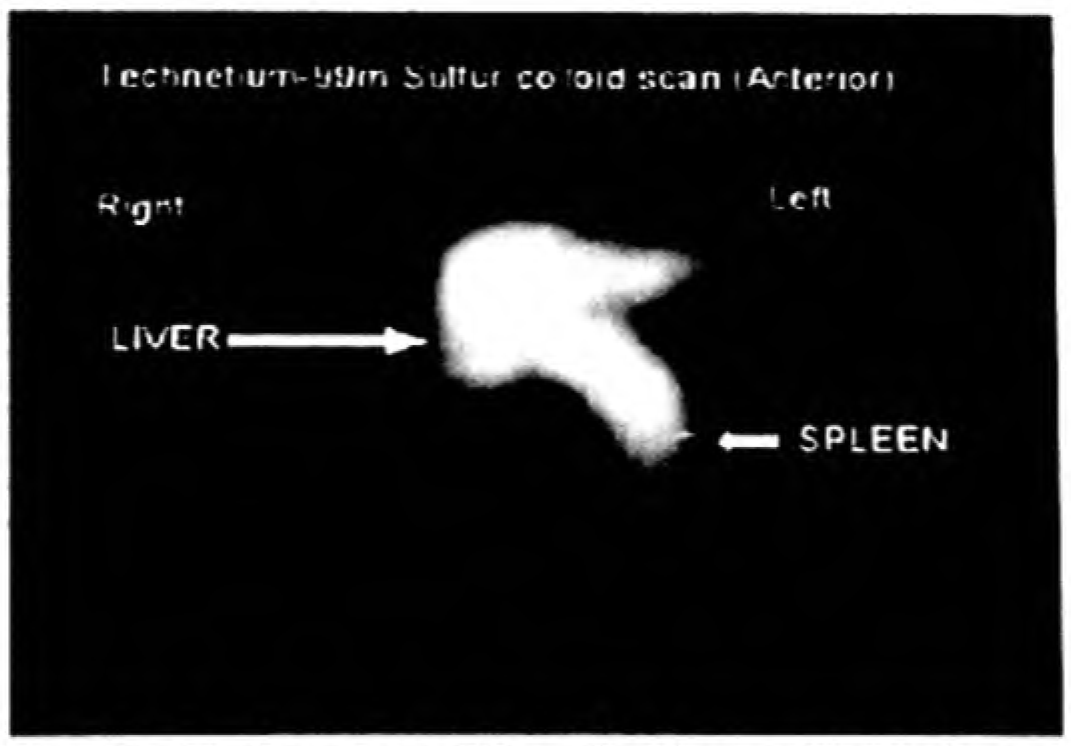

Fig: 2. Technetium-99m Sulfur colloid liver-spleen scan showing abnormal tracer uptake below the left lobe of liver (Wandering spleen).

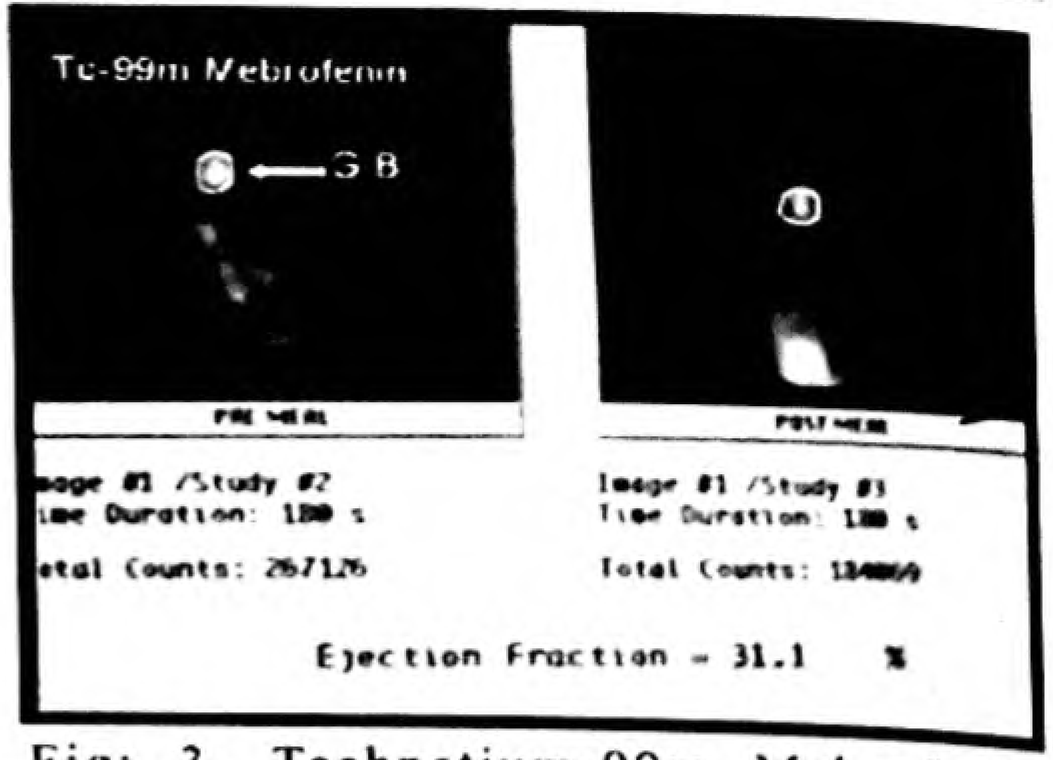

Fig: 3. Technetium-99m Mebrofenin hepatobiliary scan showing gallbladder with reduced ejection fraction.

Discussion.

Wandering spleen can be a clinical puzzle even to the best of clinicians. Diagnostic modalities like USG, CAT, MRI, Tc-99m sulfur colloid imaging and Doppler ultrasound are extremely useful in confirming this rare condition. It would not be out of context to mention that in the case presented the diagnosis of an ectopic wandering spleen was not contemplated at any point of time during evaluation of this patient that included an abdominal USG and CAT scan. Paradoxically the diagnosis was simple and straight forward on a Tc-99m sulfur colloid imaging underscoring its established utility in this disorder[9].Management of patients with a wandering spleen depends on their symptomatology. A conservative follow up with serial Doppler ultrasound is recommended in asymptomatic patients[10].Spleenectomy is recommended for complications like infarction, gangrene, and a sub capsular haematoma[10].In rest of the patients especially children splenopexy is the treatment of choice[11]. Minimally invasive state of the art laparoscopic splenopexy is an attractive alternative[12].

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MULTIPLE ABSCESSES DUE TO NOCARDIA ASTEROIDES IN A PATIENT ON STEROIDS AND AZATHIOPRINE.

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ABSTRACT

Nocardia infections are rare in humans occurring most frequently in patients who are severely immunocompromised. We report a case of nocardiosis due to Nocardia asteroides in a patient of myasthenia gravis on steroids and azathioprine presenting as multiple abscesses and altered mental status

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Introduction.

Nocardiosis is a rare disorder caused by several species of the genus Nocardia (family Actinomycetaceae). The species Nocardia asteroides is the predominant agent followed by Nocardia brasiliensis and Nocardia otitidiscaviarum.[1] These microorganisms are ubiquitous saprophytes found in the soil. They are aerobic, typically filamentous, branched, Gram positive and weakly acid-fast.[2] Although nocardiosis can occur in an apparently healthy individual, most cases are seen in patients who are severely immunocompromised. In them the predisposing factors include immunosuppressive therapy, particularly steroid drugs, neoplastic diseases, solid organ and bone marrow transplantation, chronic bronchopulmonary diseases and AIDS. Nocardia infection is usually acquired by inhalation, but rarely direct skin inoculation may be implicated.[3]

Case report

A 50-year-old female patient diagnosed as myasthenia gravis in January 2003 was put on predinisone (50mg/day), azathioprine (100mg/day) and omeperazole (20 mg bid). Her condition was stable until April 2003 when she observed swellings on her forearms that enlarged and became painful. She began to have fatigue, low grade fever and headache and was brought to the out patient department with altered sensorium.

On examination patient was ill looking with a temperature of 38'C, pulse 100/min and respiratory rate 25/min. Her B.P was 110/70mmHg. She was in grade II encephalopathy. Fluctuant swellings 2.5-3cm in size were noted on dorsal and ventral aspects of both forearms. There were no features of cellulitis or any associated lymphadenopathy. Patient was advised hospitalization for further investigations, which the attendants did not agree to. However, aspiration from one of the swellings yielded pus which was received in our laboratory for microscopic examination and culture.

Pus was thick and creamy. Gram smear revealed gram positive branching filaments and fragmented bacillary bodies (Fig-1) with plenty of inflammatory cells. Kinyoun's staining revealed beaded acid-fast filaments and bacillary forms (Fig-2) suggestive of Nocardia species. Blood agar, Mac Conkey agar, Lowenstein Jensen (L-J) medium and cooked meat broth were inoculated with the pus. After 72 hrs of aerobic incubation colonies appeared on blood agar as 2-3 mm, convex, waxy with irregular margins, adherent to the medium and became white on prolonged incubation. After 2 weeks of incubation, colonies on L-J medium appeared dome shaped, orange coloured with a musty odour. The isolate was identified as Nocardia asteroides on the basis of staining characteristics, colony morphology, presence of aerial hyphae, positive catalase and urease tests, utilization of paraffin as sole source of carbon, negative xanthine, hypoxanthine, tyrosine, starch and casein hydrolysis, no growth in 0.4% gelatin and failure to opacify Middlebrook agar.[3,9,10]

KEY WORDS : *Nocardia, abscesses, steroids, azathioprine.*

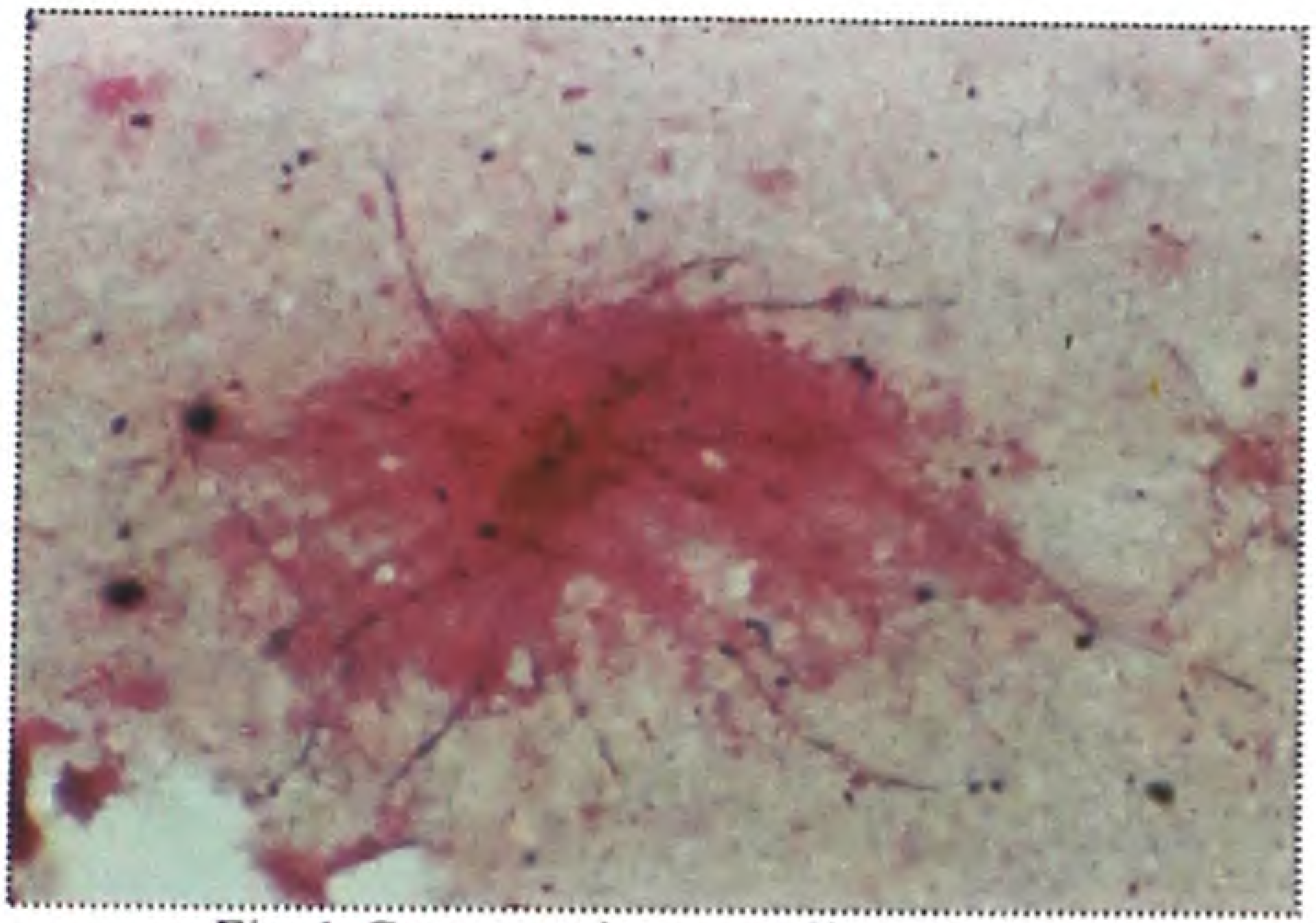

Fig-1:Gram stain revealing Gram positive branching filaments with fragmentation (1000X).

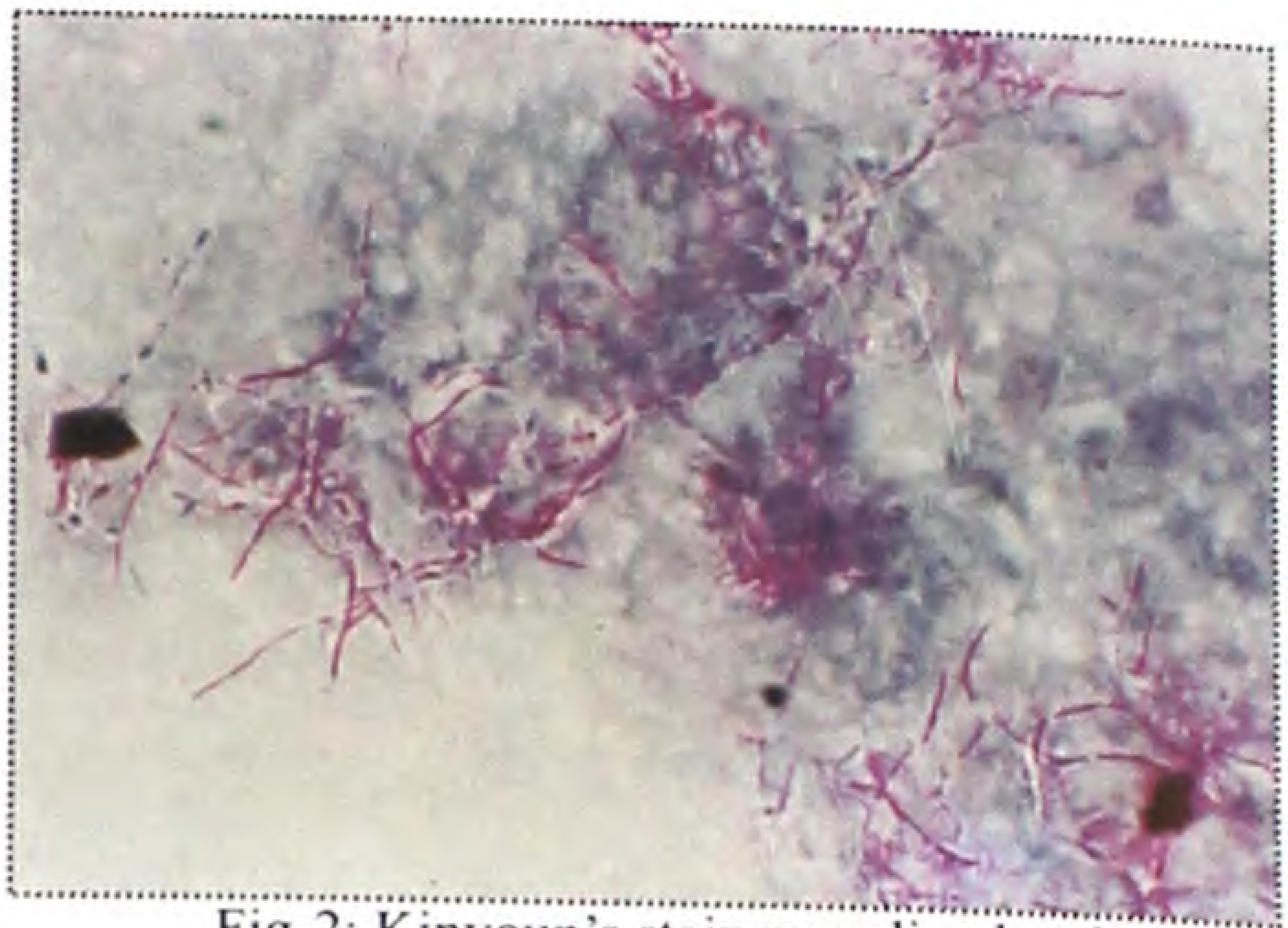

Fig-2: Kinyoun's stain revealing beaded acid-fast filaments and bacillary forms (1000X).

Discussion

Nocardiosis is a rare and potentially life threatening infection caused by aerobic bacteria of the genus Nocardia. The main source of infection by Nocardia sp. is soil where these microorganisms live as saprophytes. They are transmitted to humans either by respiratory or by percutaneous routes.[4] Nocardiosis appears to have a slight predilection for males and usually affects adults in the third and fourth decades of life. Most clinical infections in temperate countries are caused by Nocardia asteroides complex, Nocardia brasiliensis, and, rarely by Nocardia otitidiscaviarum.[3]

The cutaneous manifestations of nocardiosis include (1) superficial skin infections, such as cellulitis, pustules, ulcers, abscesses (2) a lymphocutaneous syndrome, that mimics sporotrichosis, including a cervicofacial variant in children, (3) mycetoma, and (4) disseminated disease with skin involvement.[4] However, the predominant site of infection by Nocardia asteroides is pulmonary with frequent hematogenous spread causing disseminating infections of the central nervous system and the skin. On the other hand the cutaneous manifestations of secondary and primary nocardial infection are identical, so the diagnosis of cutaneous nocardiosis should prompt a search for pulmonary or disseminated involvement, because only 15% of infections are confined to the skin and subcutaneous tissue.[1,5,6,7] Involvement of other organs is infrequent.[8]

Our case, a female in her fifth decade, on immunosuppressive agents, hailing from a temperate region, developed several abscesses on her forearms with an altered mental status.Clinical features and isolation of Nocardia asteroides from one of the abscesses suggested disseminated nocardiosis with hematogenous spread to brain and skin. However, involvement of brain and other organs could not be documented as the patient left against medical advice.

Nocardia sp. may be easily missed by Gram staining and are characterized by very slow growth in liquid or solid medium. Cultural isolation of the filamentous bacteria, e.g. from tissue scrapings, is often not successful. If nocardiosis is suspected, cultures should be held for about two to four weeks and re-examined.[4] However, in our case the isolate stained well with Gram stain and grew fairly rapidly. Although various methods are available, the antimicrobial susceptibility testing of Nocardia sp. remains problematic. Antimicrobial susceptibility testing usually requires sending the isolate to a reference laboratory.[9]

Drugs of choice for treatment of Nocardia infections are sulphonamides, trimethoprim/sulphamethoxazole, ampicillin, amoxicillin-clavulanic acid, minocycline, doxycycline, amikacin, cefuroxime, cefotaxime, ceftriaxone, imipenem, erythromycin and rifampicin. There are reports on the potent inhibitory and bactericidal activity of newer fluoroquinolones against three species of Nocardia, including Nocardia asteroides.[4] With adequate drug cover, surgical intervention is a valuable adjunct. Abscesses of the brain and lungs and empyema usually require drainage. Excision or debridement of diseased tissue is also useful.[10]

In conclusion, Nocardia sp. is an uncommon agent that has been increasingly recognized in recent years to be a cause of disseminated infections, primarily in immunocompromised or debilitated hosts. Although rare, nocardiosis should be considered as a differential diagnosis in patients with multiple abscesses and clinical features suggestive of central nervous system involvement, in particular in those on immunosuppressive therapy in the form of steroids and azathioprine.

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LAPAROSCOPIC RETROPERITONEAL URETEROURETEROSTOMY FOR CIRCUMCAVAL URETER

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ABSTRACT

We report a case of circumcaval (Retrovacal Ureter) one of the rare congential anomaly in a 24 years male patient The diagnosis was made on IVU which showed typical 'J' shaped or fish hook deformity in the dilated proximal ureteric segment with moderate hydronephrosis. The patient was successfully treated laparoscopically via retropeitoneal approach findings were confirmed and a ureteroureterostomy with anteriorisation of ureter performed and double 'J' Stent insertion.

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INTRODUCTION:-

Retrocaval (circumcaval) ureter is one of the rare congential anomaly. It is a condition in which ureter deviates medially and passes behind the IVC, winding about and crossing in front of it from medial to lateral side. It was first reported by Hochsletter[1] in 1893, and Kimborough[2] performed the first successful surgery. Incidence of retrocaval ureter is 1 in 1500 cadavers. Male to female ratio is 3or 4:1. Because of the rare nature of this anomaly (200 cases have been reported world wide[3]), here in we present a case of circumcaval ureter been successfully treated by laparoscopic technique.

CASE REPORT:-

A 24-year-old male presented with right flank pain since the past two years. The pain was sudden onset, intermittent and colicky, there was no history of dysuria, hematuria, fever, vomiting or any gastrointestinal upset. On general physical examination no abnormality was detected.

A complete laboratory evaluation was done. His heamatological profile was within normal limits, the serum electrolytes were normal and so were his blood urea nitrogen and creatinine values, urine analysis showed 7-8 pus cells and epithelial cells but no RBC's or casts.

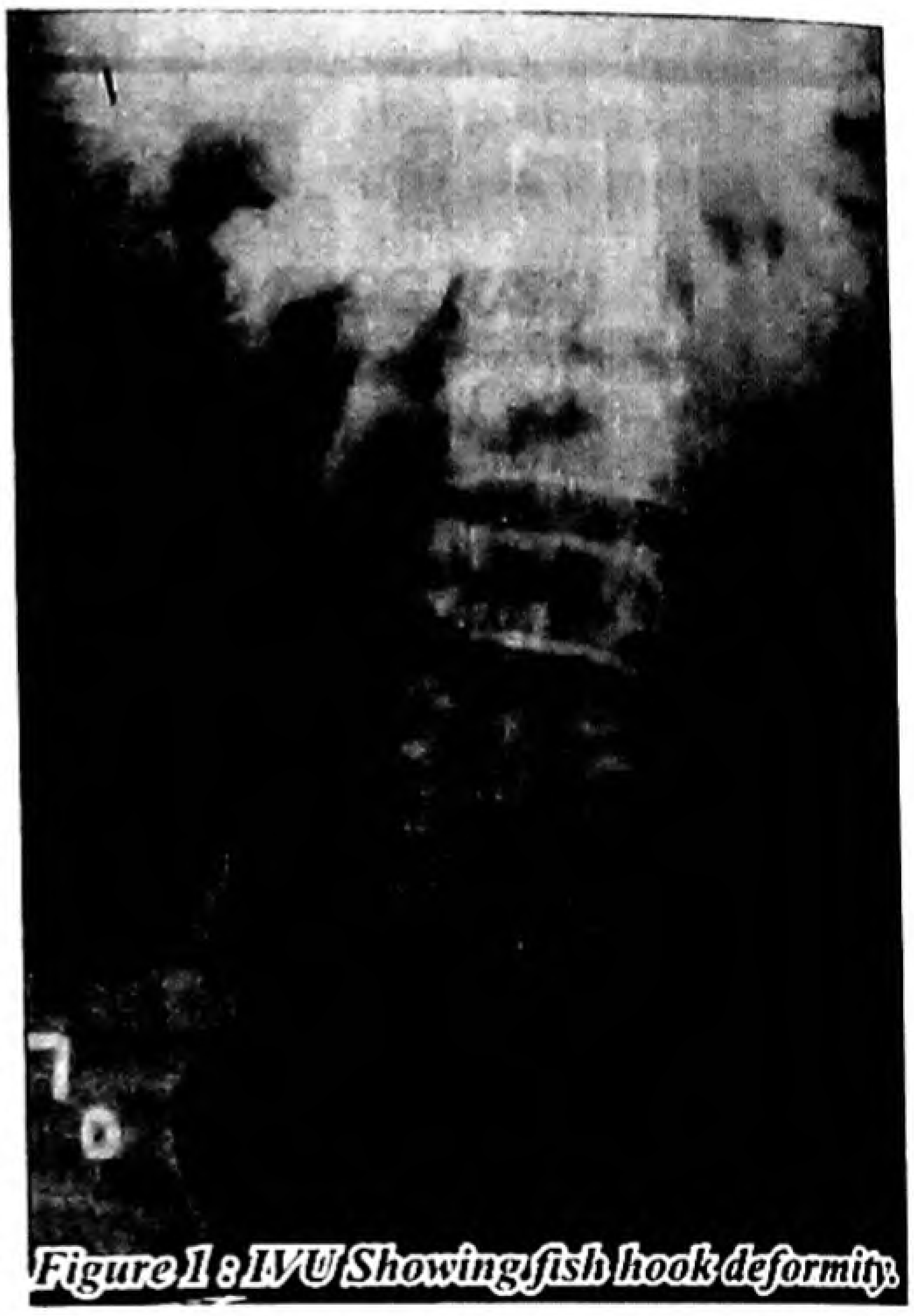

Figure 1 : IVU Showing fish hook deformity.

Plain X-ray, KUB was normal. Ultrasonography of the abdomen revealed moderate hydronephrosis on the right side. The USG findings were suggestive of proximal ureteric obstruction with hydronephrosis IVU showed hydronephrosis with proximal hydroureter. The dilated segment showed the typical 'S' shaped or fish hook deformity (fig 1- Type II of Kenawy and William Classification) the left kidney, left ureter, urinary bladder were

KEY WORDS : *Circumcaval (retrocaval) ureter, laparoscopic retroperitoneal, Double 'J'stent, inferior venacava (IVC).*

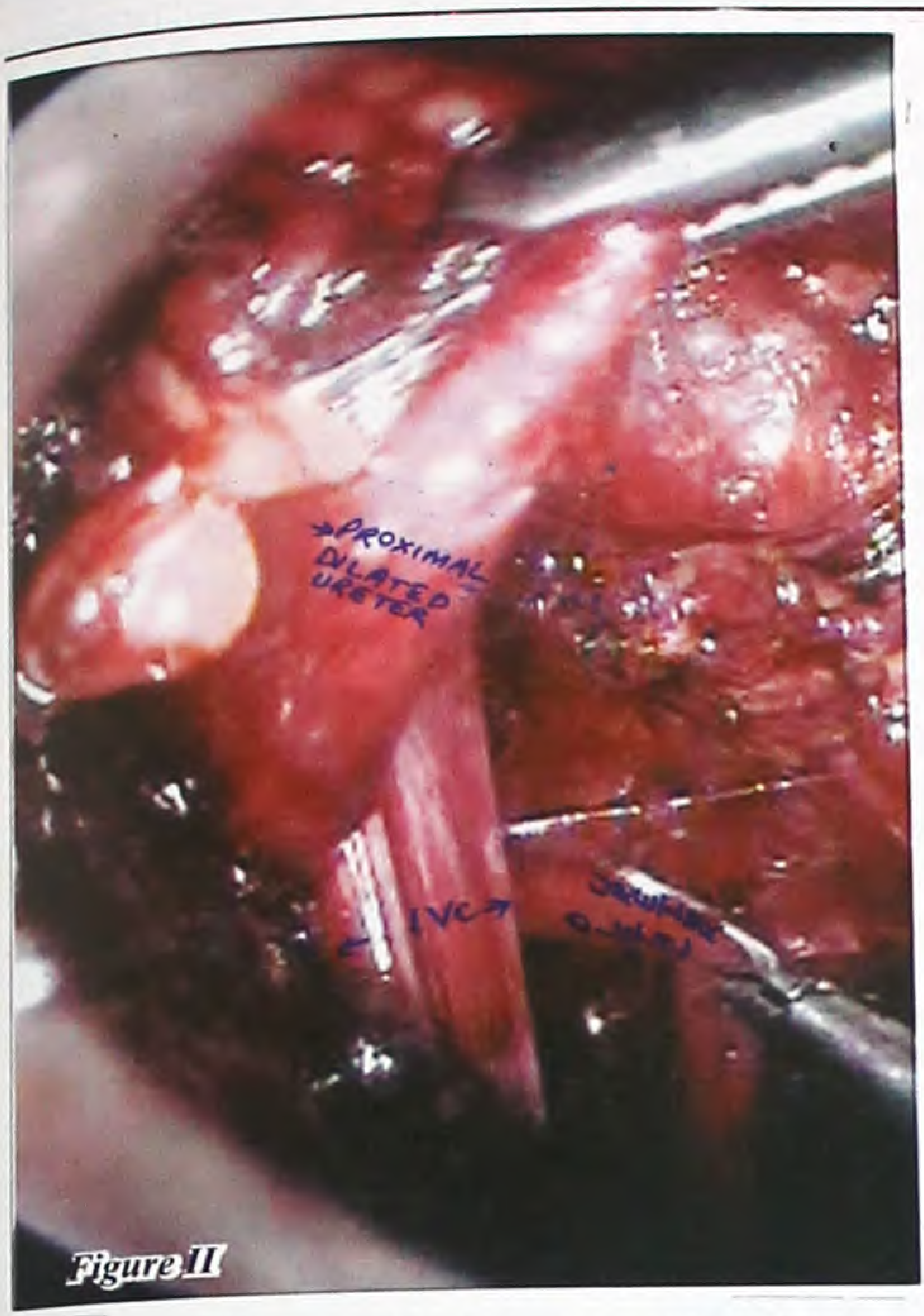

Figure II

normal, the patient was taken for laparoscopic surgery.

OPERATIVE PROCEDURE:-

Right kidney and ureter were approached laparoscopically via retroperitoneal approach. The retroperitoneal space was created after making 1.5cm transverse incision in midaxiallary line below the tip of 12th rib which was deepened after spliting the muscle with hemostat & then by finger dissection, followed by ballon trocar which was inflated to pressure of 100mm mercury. Pneumoretroperitoneum was created and maintained by CO_2 insuffulation through Hasson's cannula. The 10mm telescope was then introduced and endoscopic visualization of retroperitoneum was done; proximal ureter and pelvis were moderately dilated and distal ureter was normal. The proximal ureter curved medially then posterior to infra vena cava IVC, finally curved antromedial to infra vena cava IVC and took a downward course. Two working port sites were made a 5mm port near 1cm anterior to anterior superior iliac spine and another 5 mm port in renal angle. Ureter was mobilized, divided across the dilated upper end, the retrocaval stenosed portion excised and then was anteriorised and a long oblique end to end anostomosis was done using interrupted 4 -0 vicryl with intracorporel suturing (knots outside)after putting a double 'J' stent laparoscopically inside the ureter. Tube drain was taken out through port site near anterior superior iliac spine. Port sites were closed with vicryl. Mild surgical emphysema was noticed on port sites, drain was removed on 2nd post operative day and patient was discharged on 3rd post operative day (POD). Double 'J' stent was removed after 6 weeks. Intra venous urogram IVU done after stent removal shows regression of hydronephrosis and hydroureter.

DISCUSSION:-

Retrocaval ureter is a rare condition in which an embryological normal ureter becomes entrapped behind the venacava because of abnormal development of abdominal blood vessels. Though the abnormality is congential, it does present until the 3rd or 4th decades of life. The IVC normally develops from the posterior cardinal, sub cardinal and supra cardinal veins, which undergoes sequential development, anastomosis and regression to become the IVC and azygous venous system. Normally the right sub cardinal veins from the pre renal IVC , sub cardinal –supra cardinal anastomosis forms the renal segment and the right supra cardinal vein forms the post renal IVC . Left supra cardinal and lumbar portion of the posterior cardinal vein atrophy. If the sub cardinal vein in the lumbar portion fails to atrophy and becomes primary right side vein, the ureter is trapped dorsal to it. Variation of this include duplication of vanacava with ureter lying beside or behind the vascular limbs.

Common presentations are right lumbar pain, dull aching or intermittent (renal colic), recurrent UTI and microscopic or gross hematuria. There is high incidence of calculi due to stasis.

Diagnosis is made by Ultrasonography and is most easily confirmed by excretory urography. Spiral CT scan and MRI helps sometimes to delineate the anatomy clearly and non invisibly. CT is most efficacious and least invasive method of conforming the diagnosis[4].

Kenawy and Williams[5] (1976) classified retrocaval ureter into 2 types based on radiological apperance. In one of the upper ureter and pelvis are almost horizontal as they pass behind the venacava there is generally no obstruction and no treatment is needed. In other type ureter descends normally upto L3 level where it curves back upwards in the shape of reverse J to pass behind and around venacava, obstruction generally results.

The various anomalies detected with retrocaval ureter are horse shoe kidney, double inferior venacava IVC[6] and left retrocaval ureter with Goldehhar syndrome[7]

Treatment involves dissecting the ureter anteriorly from inferior venacava IVC, anteriorization and ureteroureterostomy. A long oblique antecaval anastomosis of ureter over a ureteric stent and upper ureteral section has been advised by R.G Rai et al[8] if there is severe hydronephrosis, Anderson Hynes reduction pyeloplasty with precaval transposition of ureter has been advocated. Occasionally nephrectomy may be required in presence of thinned cortex, poor function or severe infection.

Laparoscopic procedure has been performed successfully earlier by Polascik and Chen[9] in 1998 for managing retrocaval ureter and by Salomon L et al [10] with reduced morbidity. A case of laparoscopic ureterouretostomy has also been performed by Nezhat et al[11] for treatment of obstructed ureter due to endometriosis by ressection and uretouretrostomy.

With our limited experience we believe that laparoscopically retrocaval ureter can be managed safely with out any difficulty with definite advantage over the conventional surgery. It represents a significant advance in management of retrocaval ureter and the technique can clearly be used in an expanding fashion.

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Commentary

FREE RADICALS/ REACTIVE OXYGEN SPECIES

Vishal Tandon MD, B.M. Gupta MD, Ritu Tandon MBBS

INTRODUCTION:

In the recent years increasing experimental and clinical data have provided compelling evidence for the involvement of free radicals/ROS in large number of pathophysiological states, but still evidences are not enough to ascertain weather free radicals are cause or consequence of pathology. This has lead to increasing curiosity and interest among the scientists and researchers globally to evaluate potential benefits from the antioxidant therapy.

HISTORIC MILESTONES:

In 1900, Gomberg recognized organic free radicals, which lead to the speculation that free radical species might be involved in living system[1]. In 1954, Gerschman and colleagues proposed for the first time that damaging effects of oxygen could also be attributed to the formation of oxygen free radicals[2]. In 1956, Harman proposed the free radical theory of ageing[3]. The interest in this theory of ageing was reawakened only 13 year later when in 1969, McCord and Fridovich identified superoxide dismutase[4], the first enzymatic defense mechanism against the superoxide anion an important free radical, thus a new arena of research began. Britton chance group in Philadelphia first indicated the role of cellular mitrochondrial respiration to generate reactive oxygen species[5] which was supported by Nohl and Hegner in (1978)[6]. Halliwell and Gutteridge in 1989 reported reactive oxygen species include both free radicals as well as non-radical derivatives of oxygen[7]. They also defined antioxidants for the first time[8]. Sen, in 1995 defined oxidative stress[9] and at present number of researchers have documented the role of free radicals and reactive oxygen species in number of pathophysiological states.

FREE RADICAL CHEMISTRY[10]:

The free radical can be defined as a chemical species, an atom or molecule that has one or more unpaired electrons in valance shell and is capable of existing independently. As free radical contain an odd number of electron, which make it unstable, short lived and highly reactive; therefore it can react quickly with other compound, trying to capture the needed electron to gain stability. Generally, free radical attacks the nearest stable molecule, "stealing" its electron. When the attacked molecule looses its electron, it becomes a free radical itself, beginning a chain reaction cascade resulting in disruption of a living cell. The radical nature of a species are conventionally indicated by writing it with a heavy superscript dot. eg. $X^\bullet$

HOW FREE RADICALS ARE FORMED[10]:

A) Covalent bond cleavage of normal molecule or atom: Atoms are bounded together when they share or transfer electron to form molecule. A covalent bond is formed when a pair of electron is shared. The bond breakage occurs in two ways "homolytic cleavage" in this type of cleavage both atoms retain one electron each due to symmetrical rupture of bond. Therefore two fragments formed will contain an unpaired electron. These are called as free radicals e.g. $H - H \rightarrow H^\bullet + H^\bullet$. Such type of cleavage requires high energy input either in the form of high temperature, U.V light or ionizing radiation to cause hemolysis of covalent bond. Whereas, in other type of cleavage i.e. hetrolytic cleavage one of the atom retains both the bonding electrons and another takes none. This results in forming of ionic species e.g. $H - H \rightarrow H^+ + H^-$

B) Electron transfer: Electron transfer is a far more common an important source of generation of free radicals in biological system.

i) Oxidation reaction : By loss of a single electron from a normal molecule

ii) Reduction reaction : By addition of a single electron to a normal molecule.

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Reactive oxygen species:

The most important free radicals in biological system are radical derivatives of oxygen. Oxygen is required to transfer various substances for the release of the energy and detoxify xenobiotics. During these process oxygen acts as terminal electron acceptor and is eventually converted to more stable compound, water. This reduction of one molecule of O_2 via the cytochrome oxidase system of respiratory chain requires 4 electrons. Such type of reduction is known as transvalent reduction of oxygen to water[11].

$$O_2 \xrightarrow{4\,e + 4\,H^{+}} 2H_2O$$

Mitochondrial cytochrome oxidase system

Transvalent reduction

However, a certain reactions permit this reduction to take place by a series of **incomplete univalent reductions** each of which needs a single electron such type of reductions can produce a series of reactive radicals and non-radicals which are collectively known as reactive oxygen species (ROS)[7].

The univalent reductions and possible inter conversions of ROS are as follows[11,12] :

1) $O_2 + \bar{e} \longrightarrow O_2^{\cdot -}$ (superoxide free radical anion)
2) $2O_2^{\cdot -} + 2\overset{+}{H} + \bar{e} \longrightarrow H_2O_2$ (hydrogen peroxide) + O_2
3) $H_2O_2 + \overset{+}{H} + \bar{e} \longrightarrow OH^{\cdot}$ (hydroxyl free radical) + H_2O
4) $OH^{\cdot} + \bar{e} \pm H \longrightarrow H_2O$
5) Fenton's reaction
$H_2O_2 + Fe \longrightarrow OH^{\cdot}$(hydroxyl free radical) + OH^{-} + Fe
6) Haber-weiss reaction:
$O_2^{\cdot -} + H_2O_2 \longrightarrow O_2 + OH^{\cdot}$(hydroxyl free radical) + OH^{-}
7) $OH^{\cdot} + O_2^{-} + H + e \longrightarrow {}^{1}O_2$ (singlet oxygen) + H_2O
8)Autooxidation of reduced transition metials:
$Fe + O_2 \longrightarrow Fe + O_2^{\cdot -}$(Superoxide free radical
$\longrightarrow \quad {}^{\cdot -}$

Thus, ROS includes free radical as well as other non-radical derivatives of oxygen e.g. H_2O_2 & Singlet Oxygen[7]. These ROS can produce oxidative damage to the tissue and hence are known as oxidants in biological system[16].

There are two important sources of reactive oxygen species generation in the biological system as shown in Table – I.

Table-I: SOURCES OF THE REACTIVE OXYGEN SPECIES IN BIOLOGICAL SYESTM[17]:

SOURCES	*EXAMPLES*
Cellular Metabolism	
	·Mitochondrial electron transport[18]
	·Endoplasmic reticulum oxidation[15]
	·Enzymatic activity like :NADPH oxidase[17], Xanthine oxidase[19], Monoamine oxidase[20,21], Tyrosine hydroxylase[20,21], L-amino oxidase[20,21], Diamine oxidase[7], Glycolate oxidase[7], á-hydroxy acid oxidase[7], L –gluconolactone oxidase[7].
	·Prostaglandin synthesis[17].
	·Autooxidation of adrenaline[22], Thiol[15], Ascorbic acid[15]
	·Reduced riboflavin, $FMNH_2$ $FADH_2$[15]
	·Nitric oxide sythatase[23]
	·Stimulated neutrophils[17]
	·Activated phagocytic cells[24]
	·Reperfusion injury[22,25,26,27].
	·Cytochrome P_{450}[28].
Environmental	
	·Drugs[29]: Halothene, Paracetamol, Bleomycine, Doxorubicin, Metrenidazole, Ethanol.
	·CCl_4[1,30].
	·Pesticides[17]
	·Transition Metals (Cu, Fe)[15]
	·Tabacco Smoke[11]
	·Alcohol[12]
	·Radiations[11]: X-ray by water radiolysis Light by photoionization
	·High Temperature[34]

KNOWN REACTIVE OXYGEN SPECIES (ROS) IN BIOLOGICAL SYSTEM:

1. **Superoxide free radical anion ($O_2^{-\bullet}$)** most common ROS formed by chemical and enzymatic process. Major source of superoxide anion is leakage of electrons from various components of cellular electron transport chain. It is formed in almost all-aerobic cells. It can produce direct as well as indirect toxic effects by producing other ROS. Its reaction with EDRF (NO) has physiological importance.
2. **Hydrogen peroxide (H_2O_2)** : It is not a free radical as it has no unpaired electrons therefore, it is very sluggish. But being a oxidising agent it participates in hydroxyl radical formation and

can cross biological membrane[16]. Although it has no direct effects on DNA[16] but can produce DNA damage by their metal ion dependent conversion in to highly reactive OH radical and therefore is associated indirectly with mutation and carcinogenesis[17].

Hydroxyl free radical (OH$^{\cdot}$) : It is among the most reactive free radical in biological system[18]. It is most commonly formed from H_2O_2 by metal catalyzed reactions[11,14]. The production of OH close to DNA would lead to modification of purines and pyrimidines or strand breakage[17]. It can also cause lipidperoxidation of microsomal mitrocondrial and cell membrane[7].

Singlet oxygen ($^1O_2$) It is also not a free radical and is formed as a result of spin reversal of electron in outer orbital of oxygen molecule. It is considered highly potent oxidant with short half-life causing tissue damage[39].

Lipid peroxide (LOOH) : When (LH) target polyunsaturated fatty acid (PUFA) is attacked by free radical R (initiating oxidizing radical).Oxidationof the PUFA generates fatty acid radical(L) that rapidly adds oxygen to form fatty acid peroxyl radical (LOO) , which are the carrier of chain reaction, they can oxidize further PUFA molecules to produce LOOH (lipid hydroperoxide) that can break down to yet more reactive radical species like lipid peroxyl, lipid alkoxyl and aldehydes like malondialdehyde (MDA)[15,40]. This phenomenon of oxidative destruction of PUFA's is called as **lipid peroxidation**. These metabolic byproducts can cause direct destruction of structure of membrane or indirectly can damage other structures of cell e.g., DNA, RNA, Proteins synthesis & enzymes mainly by aldehydes like (MDA-malondialdehydes). All these mechanism explain by MDA is mutagenic, genotoxic and carcinogenic[41]

$LH + R^{\bullet} \rightarrow L^{\bullet} + RH$

$L^{\bullet} + O_2 \rightarrow LOO^{\bullet}$ (Fatty acid peroxyl free radical)

$LOO^{\bullet} + L'H$ (New PUFA) $\rightarrow LOOH$ (Lipid hydroperoxide) + L

$LOOH \rightarrow LOO^{\bullet}$(Lipid peroxyl), $LO^{\bullet}$(Lipid alkoxyl), Aldehydes (MDA).

6.Others : Like alkoxyl free radicals (LO), Peroxyl free radicals (LOO), thiyl radicals (RS) are some of the other lenoun reactive oxygen species.

OXIDATIVE STRESS’: Normally there is an equilibrium between free radical formation and endogenous antioxidant defense mechanisms. An imbalance leads to oxidative stress, which can be mainly because of two reasons either due to

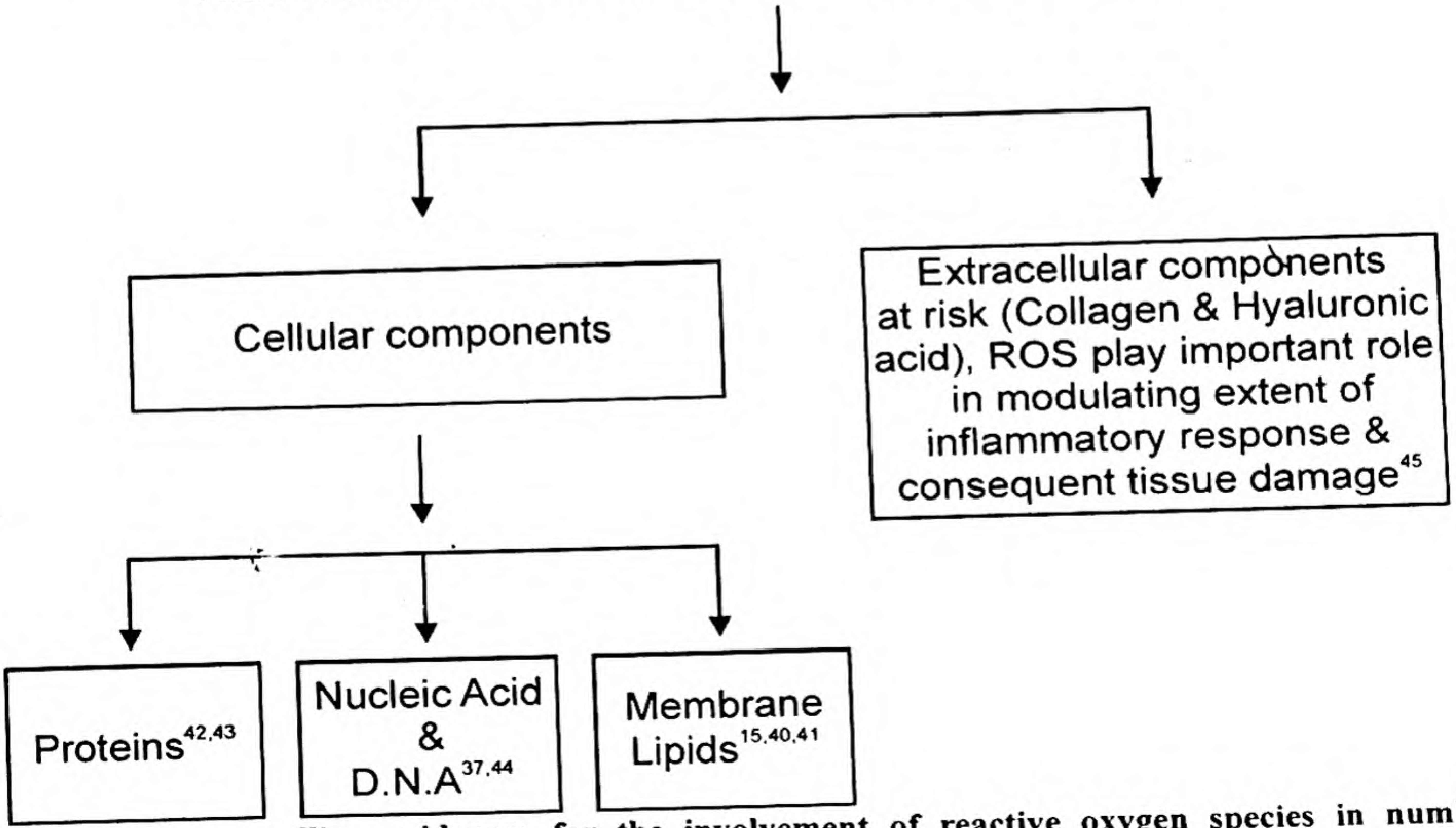
⇒ Excessive generation of reactive oxygen species (ROS)

or

⇒ Compromise level of antioxidants

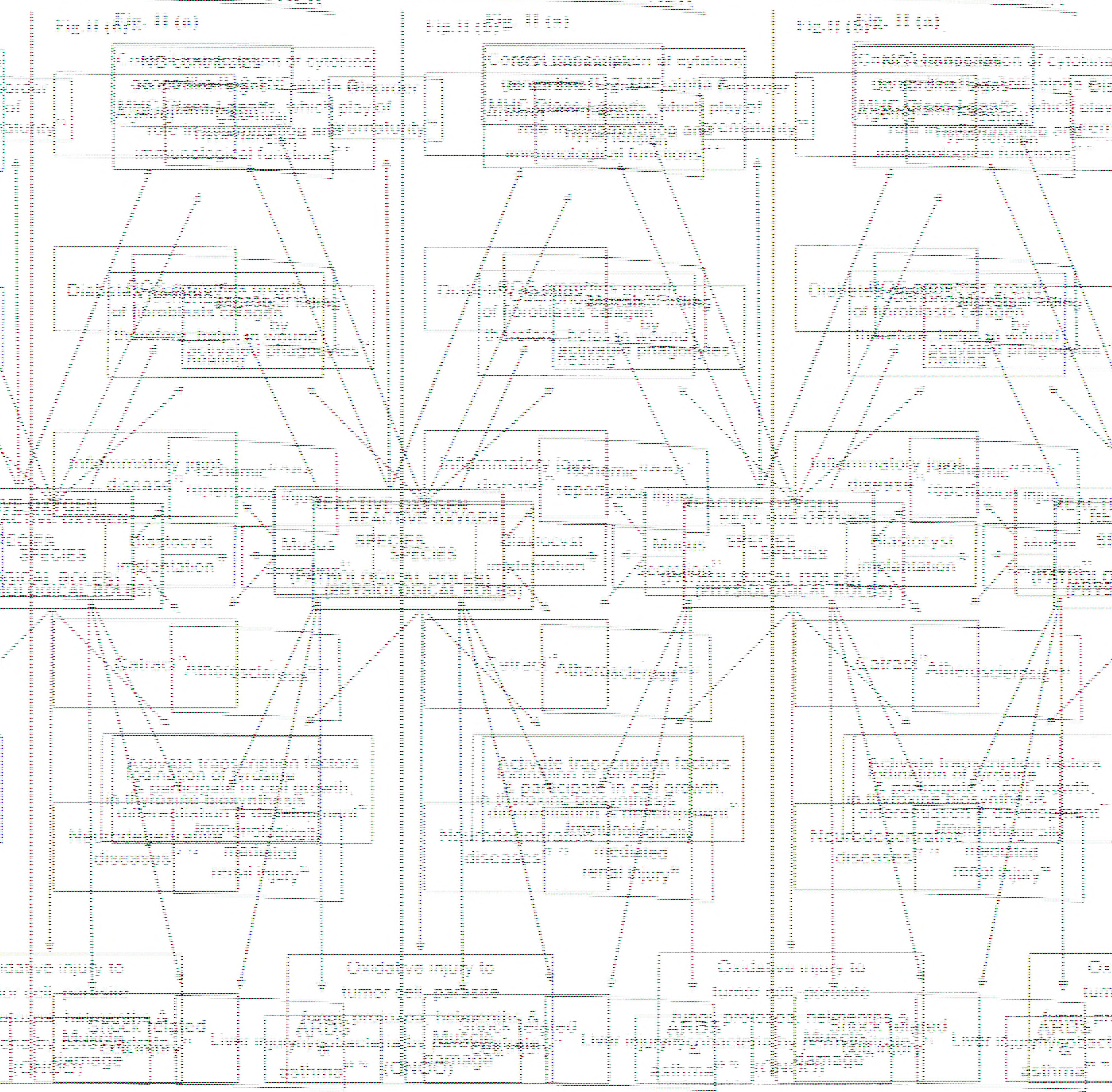
This state of oxidative stress can result injury to both cellular as well extra cellular components of cell and can cause cell death as shown in (Fig.I)

Fig. I CELLULAR & EXTRACELLULAR COMPONENTS AT RISK FROM REACTIVE OXYGEN SPECIES MEDIATED DAMAGE


Cellular components
Extracellular components at risk (Collagen & Hyaluronic acid), ROS play important role in modulating extent of inflammatory response & consequent tissue damage45
Proteins42,43
Nucleic Acid & D.N.A37,44
Membrane Lipids15,40,41

There are compelling evidences for the involvement of reactive oxygen species in number of athophysiological states as shown in fig. II(a) & (b)

Fig.II (b)


Control transcription of cytokine genes like IL-2, TNF alpha & MHC Class I gene, which play essential role in inflammatory & immunological functions
Hypertension
Diabetes
Stimulate growth of fibroblasts collagen therefore helps in wound healing
Microbicidal killing by activated phagocytes
Inflammatory joint disease
Ischemic reperfusion injury
REACTIVE OXYGEN SPECIES
(PATHOLOGICAL ROLES)
(PHYSIOLOGICAL ROLES)
Blastocyst implantation
Mucus secretion
Catract
Atherosclerosis
Activate transcription factors & participate in cell growth, differentiation & development
Neurodegenerative diseases
Immunologically mediated renal injury
Oxidative injury to tumor cell, parasite, fungi, protozoa, helminths & bacteria
ARDS
asthma
Shock related
Liver injury
Muscle damage

CONCLUSION

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Commentary

APOPTOSIS IN DERMATOLOGY: a double-edged sword

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Apoptosis (Greek: apo-away, ptosis-to drop) or programmed cell death is an important histological event in the living body. The literal meaning of apoptosis is falling of leaves from a tree or of petals from a flower.[1]

What happens in apoptosis?

By the process of apoptosis, an individual eukaryotic cell dies without causing any damage to the surrounding cells.

How does it differ from necrosis?

' In the process of necrosis, an external insult evokes an inflammatory response with a resultant collateral damage to the surrounding normal tissue. Such inflammatory response does not occur in apoptosis.[2]

How does apoptosis occur?

An innate cellular programme is activated by two mechanisms:

1. The apoptotic process is initiated by a family of trans-membrane tumor-necrosis-factor receptors called the death receptors. Six human death receptors along with their respective messenger ligands have been identified. Of these, the most important is the Fas receptor along with its Fas-L ligand and Tumour necrosis factor μ(TNFμ) and its receptor.
   In response to appropriate apoptotic signals, death ligands are released. These combine with the death receptors on the target cells.

This signal is transmitted to a series of cytoplasmic enzymes, the caspaces, in a manner analogous to the complement cascade: first the initiator caspacesC8/C10 are activated and then the effector caspaces 3, 6 and 7. These caspaces activate endonucleases and proteases. These act at the subcellular level to cause breakdown of the cell contents and ultimately apoptosis.

2. The second pathway for induction of apoptosis is the mitochondrial pathway. In response to radiation, cytotoxic drugs or withdrawal of growth factors, cytochrome C is released from the mitochondria which activates caspace 9 with the cascade activation and finally apoptosis

What happens to the eukaryotic cell in apoptosis?

The individual apoptotic cell undergoes a reduction in cell volume. blebbing of the cell membrane and margination of chromatin along the nuclear membrane. Ultimately, the nucleus condenses in to pyknotic apoptotic body surrounded by a membrane. The cytoplasmic organelles are not affected much during the process. These apoptosis bodies are engulfed by surrounding cells or macrophages with out any participation of inflammatory cells.

Which genes mediate apoptosis?

Two important genes mediate apoptosis:

1. p53 gene 2. B-cell lymphoma (BcL) gene.

The p53 gene encodes for a phosphoprotein p53 with a molecular weight of 53,000. This p53 gene product, arrests the cells in G1 phase so that repair of the damaged DNA is done before the next mitotic division. If the damage to DNA is irreparable, then it induces apoptosis to eliminate the cell. The BcL gene induces apoptosis by activating the mitochondrial pathway of caspaces.

How do we recognize apoptosis?

Apoptosis is recognized by electron microscopy or agarose gel electrophoresis in which different DNA fragments move at different rates and form a ladder pattern.

Does apoptosis occur in the skin under physiological conditions?

Yes. In response to ultraviolet radiation (UVBandUVC), apoptosis is induced in the DNA damaged epidermal keratinocytes. This results in the formation of dyskeratotic hypereosinophilic so called 'sunburn' cells. In this way the UV- damaged DNA is removed. Similarly, apoptosis is responsible for the reduction of the hair follicle in the catagen phase of the normal hair cycle.

In the process of cornification of epidermal cells, apoptosis plays a key role. By the process of apoptosis, the living and nucleated cell in the upper layers of stratum granulosum is converted to the dead anucleated corneocyte of the stratum corneum. In fact ,remnants of the apoptotic nuclei are recognized in the stratum corneum.

Does apoptosis occur in the skin under pathological conditions?

Apoptosis also has an enormous role to play in various pathological dermatoses. To name a few, these include toxic epidermal necrolysis, lichenoid tissue reaction and lichen planus, graftversushostdisease, malignancies and autoimmune disorders.

i). **Toxic epidermal necrolysis(TEN)** is an acute severe, life-threatening reaction of the skin in which extensive damage of the epidermis occurs resulting in skin tenderness and denudation of entire sheets of the epidermis with a body surface are involvement of>30%. TEN is akin to Stevens Johnson syndrome(SJS)but SJS differs in the morphology and surface area of lesions, with<10%body surface involvement in SJS. Histopathology of SJS-TEN reveals apoptosis of keratinocytes and their transformation into dyskeratotic pyknotic bodies. The induction of apoptosis in these conditions occurs due to drug or toxin mediated massive release of tumor necrosis factor á.. In TEN, keratinocytes also express Fas-ligand which is lytically active and can induce apoptosis on interaction with Fas receptors on epidermal keratinocytes itself.[3]

This advancement in understanding apoptosis led to the development of a treatment modality for TEN. Intravenous immunoglobulin(IVIG) prepared from multiple donors contains naturally occurring antiFas antibodies. If keratinocytes are treated with IVIG, there is blockade of Fas receptors and subsequent exposure to Fas ligand does not lead to apoptosis.[4]

Viard et al [5]treated ten patients of TEN with high doses of IVIG (0.2-0.75mg/kg per day) for four consecutive days. Complete recovery was noticed in all patients with epidermal regeneration seen within 7-12 days.

At the same time, it must be mentioned that the role of apoptosis in the systemic sequelae of TEN- hepatitis, pancreatitis, and lung and kidney involvement is doubtful.

ii). Apoptosis is also implicated in **lichenoid tissue reactions and lichen planus**.[6] Lichenoid tissue reactions are characterized histologically by basal keratinocyte damage and mononuclear cell infiltrate at the dermo-epidermal junction. The individual keratinocytes which are damaged present as colloid(civatte or cytoid) bodies, on histopathological examination of the lesions. These colloid bodies are apoptotic cells. The mode of cell death in lichenoid tissue reaction is mediated by cytotoxicT- cells and natural killer cells. Cytotoxic T-cells release granzyme A and B. Granzyme A acts as a perforin, that is, it is a pore forming protein which drills a hole in the cell-membrane of the target keratinocyte. Through this pore granzyme B is introduced in to the cytoplasm of the target cells. Granzyme B is a serine protease which promotes apoptosis.

The interaction of Fas receptors on the target cell and Fas ligand on the cytotoxic cells in the sub epithelial infiltration is also important.[7]

iii). **Graft- Versus- host disease(GVHD)** occurs as a result of bone marrow transplantation and is due to an attack of immunocompetent donor lymphocytes on the non- HLA matched host tissue[8]. The target cells are skin, intestines and liver. In the acute GVHD and lichenoid variant of chronic GVHD, mummified cells with dyskeratosis, hypereosinophilia and pyknotic nuclei are seen. These represent Fas mediated apoptosis in the target organ.

iv).**In basal cell carcinoma and melanomas**, Fas receptors are absent.[9] Hence, cytotoxic T-cells expressing Fas-L ligand fail to eliminate the malignant cells. If intralesional injection of interferon alfa is done, reinduction of Fas-receptor on the tumor cells occurs. This causes regression of the tumor by apoptosis.

v). **Primary cutaneous T-cell lymphoma(CTCL)** is a group of skin homing CD4 positive T- cell neoplasms. Loss of Fas expression on neoplastic cells results in aggressive type of CTCL. If it is retained, then indolent types of CTCL are seen.[10]

Thus apoptosis helps the body to eliminate tumor cells by an effective immune response.[11] Defective apoptosis is associated with aggressive skin neoplasms. Induction of apoptosis by cytotoxic drugs. ultraviolet radiation and electron beam therapy results in remission in patients with CTCL.

vi). **Other disorders**: One of the theories on psoriasis proposes that defective apoptosis resulting in hyperkeratosis with parakeratosis is responsible for this disorder.[12]

Human immuno-deficiency virus is seen to cause decrease in the number of lymphocytes. HIV associated lymphopenia and neurological complications are due to HIV-1 Tat protein induced apoptosis in the target cells.[13]

During embryogenesis, autoreactive T-cell clones are eliminated and thus body is protected. This elimination of T-cells occurs by a process of apoptosis. Failure of the same results in auto reactive T-cells being retained. These then wreck havoc on the body resulting in various auto immune disorders.

In scleroderma, anti-endothelial cell antibodies upregulate the expression of adhesion molecules on the endothelial cells and induce apoptosis of these cells.

Apoptosis and Therapeutics:

Apoptosis has resulted in the addition of many treatment modalities available to the dermatologist.

Narrow band UVB[12], PUVA, UVB radiations act in psoriasis and other disorders by inducing apoptosis.

To conclude, as we begin to unravel the role of conserved cellular processes such as apoptosis in both skin development and in the pathogenesis of skin disease,more effective treatments based on the precise nature of molecular and cellular defects will be created, providing invaluable benefit to the field of dermatology.

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APOPTOSIS AND BLADDER CANCER

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INTRODUCTION :

Apoptosis (shedding of leaves) is a form of cell death in which a cell activates a self- destruct mechanism, leading to its death. Apoptosis plays a key role in cancer prevention and its trearment. Most of the anticancer agents act by activating the process of apoptosis .

Apoptosis describes the events of cell death which throughout the normal development of a cell and as a response to a variety of initiation stimuli .Apoptosis is often reffered to as being synonymous with programmed cell death .In PCD, cell death is predetermined by a genetic clock which is activated at an appropriate time .Apoptosis should be differentiatrd from Cell necrosis .in which cell death follows cell injury or toxic injury .In cell necrosis cell loses its integrity and leaks its cellular contents whereas in apoptosis cell mantains its integrity and its contents do not leak .No inflammatory reaction occurs in apoptosis .

Apoptosis and cell morphology in bladder cancer :

Various morphological changes of apoptosis in bladder cancer subjects receiving intravesical chemo-immunotherapy or systemic chemo-radiation, include compaction of nuclear hromatin(pyknosis),loss of celluler volume and chromatin condensation on the nuclear envelope (nuclear crescents) After chromatin condensation ,convolution of the nuclear cellular outlines , reffered to as Zeiosis ,procedes the collapse of the nucleus and its disintegration into sphere like fragments .These fragments become sealed by plasma membrane to form several apoptotic bodies in which closely packed organelles appear intact. Apoptosis can be expressed as an apoptotic index ie the number of apoptotic cells divided by the population of cancer cells Apoptotic index is related to tumour prognosis .Various cellular and biochemical changes in apoptosis can be measured by DNA electrophorosis and flow cytometry [1,2].

Moleculer biology of apoptosis :

Failure of regulatory genes at any stage of apoptosis leads to prolonged survival of an abnormal genome causing tumourogenesis and resistance to anti- cancer agents . The process of Apoptosis has been thoroughly studied in a nematode ie caenorhabditis elegans .The apoptosis process of this nematode is strikingly similar to humans.The genes responsible for apoptosis operate at its induction, regulation and termination stages.

INITIATION :

In response to DNA damage, the TSG p53 either induces apoptosis or repair and is thus known as Guardian of genome . After DNA damage p53 causes cell cycle arrest by activating p21 .p21 inhibits cyclin -dependent kinases which is required for GI to S-phase progression. After p21 activation cell fails to leave GI phase till it is repaired .Overexpression of p53 or mutant p53 fails to induce apoptosis or repair and leads to cacer formation and resistence to anticancer agents . Mutant p53 is associated with high grade and higher stage bladder tumours (3,4,5)

Regulation :

The bcl-2 check point . Bcl-2 gene is an inhibitor of apoptosis whereas Bax,bik,bak etc activate apoptosis. Over expression of bcl-2 is associated with failure of the tumour to respond to therapy .

Termination :

The Caspases are a group of proteolytic enzymes which cause degradation of structural proteins of a cell and thus are viewed as executioners of apoptosis .

Future prospectus :

In future ,it may be possible to block a gene which provides a selective survival adventage using anti-sense oligonucleotides and thus sensitises the cells to a cytotoxic agents.

*For example:*bcl-2 anti-sense nucleotides ,when incorporated into the cells , binds to bcl-2 and down regulates bcl-2 tranaslation thus enhancing response to chemo therapy.

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A CASE STUDY ON PATIENT SATISFACTION IN SMHS HOSPITAL, SRINAGAR

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ABSTRACT

A survey on patients satisfaction ratio at SMHS Hospital, Srinagar was conducted for inpatient services. An exit interview adopting the questionnaire technique was conducted for 100 patients admitted in Surgical, Medical, ENT, Ophthalmology, Dermatology, Burn Wards. The objectives of the study was to elicit the patients opinion about the quality of services at SMHS Hospital, Srinagar and to analyze and interpret various factors which influence the patient satisfaction and to suggest measures for introduction of quality management Programme for Hospital services at SMHS Hospital.

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INTRODUCTION

The goal of any service organization is creation of satisfaction among the customers. The Maslow's theory of hierarchy of needs is famous theory which says that man is wanting animal and his motives go on changing. The fulfilled motive no longer remains a motive, once one;s need is fulfilled the other takes the place.[1] The concept of patient satisfaction is rapidly changing to customer's delight which means the patient is not only cured of his ailments during the hospital stay but is also pleased with the amenities provided to him by the hospital and its staff during the stay which he fondly remembers after being discharged. The role of manpower does play a very important role in patient satisfaction. The hospital is a complex institute and every person directly or indirectly involved in rendering services is important for the patient.[2] The modern treatment based on advance technology is not only costly but is full of complexities. Therefore patient satisfaction has a special consideration in treatment.

MATERIALS & METHODS

There is no specific tool by which one can measure quality of services in medical services, however the level of satisfaction of patient about the hospital services can be considered an important tool of quality services[3]. The patients satisfaction is an increasing assessing tool for measurement of quality services and this can be used a positive feedback systematically to choose between alternative methods of organizing or providing health care to the masses.[4] The study of patient satisfaction was carried out in the SMHS Hospital on the inpatients. A sample of 100 inpatients (both male & female) between 15 to 70 years age from Medical, Surgical, ENT, Ophthalmology, Dermatology, Burn Wards were included in the study. Questionnaire was developed and responses collected from the patients of long stay directly. Data thus collected was scrutinized, analyzed and inferences were drawn.

THE QUESTIONNAIRE CONSTITUTED THE FOLLOWING ASPECTS

1. Opinion about admitting & registration procedures.
2. Opinion about services in ward.
3. Opinion about nursing services.
4. Opinion about Nutrition & Dietary services.
5. General information about attitude of doctors, laboratory services, Radiology Services, Hospital linen etc.
6. Marketing questions for e.g. willingness to recommend this hospital to friends and relatives etc.
7. It contained also the back ground information of the patients Name, Age, duration of stay, Bed/Ward, Sex, Residence.

OBSERVATIONS:

In the outcome related to quality care, the credit points are "number of lives saved, number of patients recovered and rehabilitated." Debt points are "deaths, complications due to drugs or procedural errors, hospital infections and so on".[5] The study of patient satisfaction with the Hospital services at SMHS Hospital was carried out to elicit the patient's opinion about the quality of services at SMHS Hospital and to analyze the various factors which influence patient's satisfaction or dissatisfaction with the hospital services.

The SMHS Hospital is 710 bedded teaching hospital which is spread in a large share. It has many well reputed associated hospitals like Bone & Joint Surgery Hospital, Gynaecology Hospital (Lalla Ded) Pediatric Hospital, Psychiatry Hospital and Chest Diseases Hospital. It has a good laboratory back up. It has facilities of C.T. Scan and MRI. It has got well established laundry Department, CSSD Deptt. and Blood Bank etc. The opinion of 100 patients were studied using the patient satisfaction questionnaire schedule. Patient's response was categorized as poor, average, good and excellent.

RESULTS & CONCLUSSION:

The hospital administrators should be aware of the needs and expectations of the public as per the feedback of the public relations department and accordingly take policy decisions. These measures play a significant role in patients satisfaction.[6,7] A good communication between the patient and provider of health care is vital factor for patient satisfaction. There should not develop any communication bridge between the doctor and the patient.[8]

From the aggregate of scores of 21 questions of satisfaction questionnaire, it was found that 14.3% patients considered the services at SMHS Hospital as excellent, 69.9% considered it as good, 9.1% say that it was average and 6.7% of patients were poorly satisfied with the services.

Item- wise satisfaction score showed highest score for patient satisfaction of excellent category regarding attending doctors (50%), followed by 31% about quality nursing care and 13% regarding quality laboratory work. Item wise dissatisfaction score showed highest score for poor satisfaction i.e. 32% regarding patient linen, followed by poor variety of selection of food items (22%) and poor cleanliness of toilets and bathrooms (12%).

95% of patients preferred to suggest this hospital for friends and relations and for future consultations. Most of the patients suggested that the necessary medicines and surgical items required should be made available in the hospital even if they have to pay for it and they should not be asked to run to market for these medical & surgical items. It was also found that almost all the patients and their attendants stressed that the hospital management should regularly visit the ward area to listen to the grievances of the patients and should apply necessary remedial measures.

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PREVALENCE OF REFRACTIVE ERRORS IN SCHOOL CHILDREN

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ABSTRACT

Ophthalmic screening was done on a total of 1062 children aged 6-16 years comprising of two groups of comparable age.The urban group comprised of 507 children of both sexes and the rural group of 555 children of both sexes. Refractive errors were found in 54.04% of the children (285) which were, myopia 40.56%, hyperopia 13.49%, myopic astigmatism 5.53%, hyperopic astigmatism 3.86%. Amblyopia was not found in any child. The duration of study hours was found to have a positive correlation with the myopia.

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Introduction:

Large number of studies on the prevalence of refractive errors in various population groups have been done. Refractive errors, are by far the commonest cause of defective vision in school children. The prevalence rate of myopia among school children in Taiwan is over 75% at the age of 18 years[1]

Material and methods:

The present study was conducted in the department of Ophthalmology, Government Medical College Srinagar. The sample of school children (Age 6 - 16yrs) was selected from both rural and urban areas. To assess the prevalence of refractive errors in school children among two groups, stratified random sampling was adopted.

A 10% institution of the total was drawn at random with the help of 2 digit random sample table.

The questionnaire comprised of 2 blocks wherein Block 1 refers to identification, that is name of institution, class, section, roll number, name, age and sex of the child. Block 2 omprised of relevant history and examination. History included_any history of diminution of vision, headache, eye strain, redness, watering, itching, deviation of eyes or use of spectacles. It also included amount of near work (reading and writing) in hours per day.

Every child was subjected to detailed general physical and systemic examination and examination of the eyes. Visual acuity by Snellens test type was adopted (6 Meter). Retinoscopy at 1 meter distance by cycloplegia using 1% cyclopentolate.. Detailed fundus exmination was done in every case using direct ophthalmoscope (HEINE BETA – 200 CE).

Observations:

In this study 507 cases were studied in urban group and 555 in rural group. Out of 507 school children in urban group, male and female children were in the ratio of 1.3:1. In the rural group out of 555, male and female were in the ratio of 1:1.7.

In the urban group, out of 289 male children (578 eyes), vision of 6/6 was recorded in 212 eyes (73.36%) on both sides whereas out of 218 females vision of 6/6 was recorded in 151 eyes (69.27%) on right side and 152 eyes (69.72%) on left side. Visual acuity of 6/36 in the male group was observed in 1 eye (0.35%) on right side and 1 eye (0.35%) on left side whereas in females 1 eye (0.46%) had a vision of 6/36 on right side and 2 eyes (0.92%) on left side. No case had a vision of 6/60 or less in the male group whereas only 1 eye each on right and left side in female group had a vision of less than 6/60

Out of 507 cases (1014 eyes), 349 cases (68.84%) were Emmetropic. 37 cases (7.30%) had hyperopia of 0.25D to 1.75D whereas only 4 cases (0.79%) had a hyperopia of equal to or greater than 2.0D.

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Myopia was the most common observed refractive error.112 cases (22.09%) had a myopia of 0.25D to 1.75D and 5 cases (0.98%) had a myopia of 2.0D to 3.75D. None of the cases had a myopia of 4D or more. Myopic Astigmatism was seen in 18 cases (3.55%) whereas hyperopic Astigmatism was seen in 15 (2.96%) cases. Table-1

Distribution of ocular refraction in spherical equivalents in urban children in relation to sex and age.

Age (years)	Sex	Hyperopia		Emmetropia	Myopia			Total
		>=2.0D	0.25-1.75D		0.25-1.75D	2.0D-3.75D	=>4.0D	
6-7	M	X	3	26	12	X	X	41
	%	0.00	7.32	63.41	29.27	0.00	0.00	
	F	x	2	14	7	x	x	23
	%	0.00	8.70	60.87	30.43	0.00	0.00	
8-9	M	1	2	11	5	1	X	20
	%	5.0	10.00	55.0	25.0	5.0	0.00	
	F	1	3	24	11	1	x	40
	%	2.5	7.50	60.0	27.50	2.50	0.00	
10-11	M	X	6	35	9	1	X	51
	%	0.00	11.76	68.63	17.65	1.96	0.00	
	F	2	2	18	10	x	x	32
	%	6.25	6.25	56.25	31.25	0.00	0.00	
12-13	M	X	6	45	11	X	X	62
	%	0.00	9.68	72.58	17.74	0.00	0.00	
	F	x	5	47	12	x	x	64
	%	0.00	7.81	73.44	18.75	0.00	0.00	
14-15	M	X	3	39	12	X	X	54
	%	0.00	5.56	72.22	22.22	0.00	0.00	
	F	x	2	43	14	x	x	59
	%	0.00	3.39	72.88	23.73	0.00	0.00	
16	M	X	3	47	9	2	X	61
	%	0.00	4.92	77.05	14.75	3.28	0.00	
	F	x	x	x	x	x	x	x
	%	0.00	0.00	0.00	0.00	0.00	0.00	
Total	No.	4	37	349	112	5	X	507
	%	0.79	7.30	68.84	22.09	0.98	0.00	

Out of 65 (11.71%) children in the age group of 6 – 7 years a normal visual acquity of 6/6 was recorded in 56 (86.15%) cases in both eyes and 9 (13.18%) cases had a vision of 6/9 to 6/12. No case in this age group had a vision of 6/18 or worse.

In the rural group, out of 202 (404 eyes) male children, 167 (82.27%) eyes had a vision of 6/6 on right side whereas 83.08% recorded a vision of 6/6 on left side. 25 (12.32%) eyes had a vision of 6/9 on right side and 26 (12.94) on left side. 11 eyes (5.42%) on right side and 8 eyes (3.98%) on left side had a vision ranging from 6/12 to less than 6/60.

Out of 353 (706 eyes) females, 287 (81.30)eyes on right side and 293 (83 .60 %) eyes on left side recorded a vision of 6/6 whereas 54 (15.21 %) eyes had a vision of 6/9 on right and 50 eyes (14.16%) on left side. 10 eyes (2.82%) recorded a vision of 6/12 to 6/60 and 2 eyes (0.56%) recorded a vision of less than 6/60 on right side .10 eyes (2.82%) recorded a vision of 6/12 to 6/24 and no case had a vision of 6/36 or less in the left eye. Table 2.

Out of 555 cases (1110 eyes), 428 (77.12%) cases were emmetropic. 28 (5.04%) cases had hyperopia of 0.25D to 1.75D whereas only 2 (0.36%) cases had a hyperopia of equal to or greater than 2.0D. Myopia was the most common observed refractive error. 94 (16.94) cases had a myopia of 0.25D to 1.75D and 3 (0.54%) cases had a myopia of 2.0D to 3.75D. No case had a myopia of equal to or greater than 4.0D (Table-V) Myopic astigmatism was seen in 11 (1.98%) cases and hyperopic Astigmatism in 5 (0.9%) cases.

Refractive error significantly varies in rural and urban population ($P<0.01$). There is no significant difference in refractive error as per sex distribution in rural as well as urban population.

It was also observed that urban school children spent four hours in reading and writing at school and an average of four hours at home, whereas rural school children spent about 4 hours in reading and writing at school and an average of one to two hours at home.

Distribution of ocular refraction in spherical equivalents in rural school children in relation to age and sex

Age (years)	Sex	Hyperopia		Emmetropia	Myopia			Total
		>2.0D	<0.25-1.75D		0.25D-1.75D	2.0D-3.75D	>=4.0D	
6 – 7	M	X	3	17	6	X	X	26
	%	0.00	11.54	65.38	23.08	0.00	0.00	
	F	x	3	33	3	x	x	39
	%	0.00	7.69	84.62	7.69	0.00	0.00	
8 – 9	M	1	1	11	1	1	X	15
	%	6.67	6.67	73.33	6.67	6.67	0.00	
	F	1	3	33	7	x	x	44
	%	2.27	6.82	75.00	15.91	0.00	0.00	
10 – 11	M	X	4	28	7	1	X	40
	%	0.00	10.00	70.00	17.50	2.50	0.00	
	F	x	3	21	9	x	x	33
	%	0.00	9.09	63.64	27.27	0.00	0.00	
12 – 13	M	X	3	46	2	X	X	51
	%	0.00	5.88	90.20	3.92	0.00	0.00	
	F	x	3	94	23	x	x	120
	%	0.00	2.50	78.33	19.17	0.00	0.00	
14 – 15	M	X	1	31	9	X	X	41
	%	0.00	2.44	75.61	21.95	0.00	0.00	
	F	x	1	67	14	x	x	83
	%	0.00	2.41	80.72	16.87	0.00	0.00	
16	M	X	1	20	7	1	X	29
	%	0.00	3.45	68.96	24.14	3.45	0.00	
	F	x	1	27	6	x	x	34
	%	0.00	2.94	79.41	17.65	0.00	0.00	
Total	N0.	2	28	428	94	3	X	555
	%age	0.36	5.04	77.12	16.94	0.54	0.00	

Discussion :

Myopia was the most common refractive error in both groups, 23.08% in urban group and 17.48% in rural group. Lower degrees of myopia i;e 0.25D to 1.75D comprised almost 95% of total myopics in both groups. A higher prevalence has been reported in Taipei, Taiwan by Luke Long – Kuang Lin[1] whereas, lower prevalence has been reported in Malanesian school children by Garner LF et al[2] and KalikivayiV[3]. Such differences in prevalence could be due to difference in population. In the present study prevalence of myopia was found to be significantly higher among children less than 13 years. This suggests indirectly that myopia is progressive and/or that the onset of myopia may be delayed in some children. Myopia was more prevalent in urban group ($p<0.05$). This observation is consistent with the observations of Chandra et al[4]. Increased prevalence of myopia in urban population is attributed to increased literacy rate and educational demands. The duration of study hours was found to have a positive correlation with the myopia. Economic development and myopia has also been correlated and found that higher the per capita income, higher the incidence of myopia. Myopia is known in all races and variation is also found within and between population subgroups. So far, it cannot be stated whether myopia is environmental or hereditary. In low myopia there is little doubt of the importance of genetic factors but this does not exclude environmental factors like poor lighting, poor ventilation and overcrowding[4]. Garner LF et al[6] reported that there was no difference in the prevalence of Myopia between girls and boys which is similar to our results.

The prevalence of hyperopia was found to be 5.4% in rural group and 8.09% in urban group. There was no significant difference between male and female children.

Astigmatic refractive errors are less common in both groups, but were seen in higher percentage in urban group. The present study supports the assumption that vision screening of school children could be useful in detecting correctable causes of decreased vision, especially refractive errors, and in minimizing long term permanent visual disability. All the children with refractive error in both groups improved to normal or near normal visual acuity with appropriate correction.

To conclude, the young children with substandard vision rarely show obvious symptoms unless the defect is gross. This problem could be resolved by a reliable visual test of every child very early in the school carrier. The large scale use of illiterate E should enable reliable vision tests to be done at 6th year. More so vision screening of school children should be included in the state school health programmes so that defective children are detected early and long term visual disability minimize.

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Prevalence of Rheumatic Heart Disease in School Children (5-15 years) in a Rural Block of Srinagar.

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ABSTRACT

To determine the prevalence of rheumatic heart disease in school children (5-15 Years) a cross –sectional study was conducted in rural block of Ganderbal. Out of a total 4125 children from 54 schools selected randomly, 21 children (10 Male & 11 Female) had evidence of RHD, giving overall prevalence of 5.09/ 1000 .Maximum cases were seen in the age Group of 11-15 year. Children of parents belonging to lower income group were more effected by the disease. Poor housing with poor ventilation and over crowding were associated with high prevalence of disease. Mitral Valve was most common valve involved and combine MS with MR was the Commonest valvular lesion. We conclude that RHD is an important health problem here with prevalence rates many times more than that of west. Poverty, poor housing including overcrowding and poor ventilation are the prime risk factors responsible for the disease. Improvement of socio economic and living conditions and creating awareness may help decrease the spread of disease. Early reporting of the cases so that effective primary or secondary preventive measures as the case may be are taken well in time to prevent the related morbidity and mortality.

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Introduction:-

Rheumatic Heart Disease is a global problem, more so in the developing world[1]. The Disease usually affects children of school going age and young adults. Its prevalence is markedly different in different countries, varying from very low to as high as 33 Cases/ 1000.[2]. Although there has been a sharp decline in the incidence of rheumatic fever in last six decades in the developed world but the picture is altogether different in developing countries which continue to experience a high prevalence of this disease. In India RHD is a common form of Heart Disease and the main cardiovascular cause of death among children and young adults. It Accounts for 33-50% of all cardiac cases both in inpatients and outpatients through out the country[3]. School surveys carried in 5 Indian cities by ICMR found its overall prevalence to be 6/1000 in the age group of 6-16 years with vast regional variations[4].

Material & Methods:-

The present Study was conducted in rural block of Ganderbal which is the field practice area of the Department of SPM, GMC Srinagar. It was a cross sectional study conducted for a period of one year from April 1999 to March 2000, with the study subjects being school children from 5 to 15 years of age. A total of 4125 school children from 54 schools from primary to High school level of the said block, selected randomly (50% SRS) were examined. After taking History and general physical examination, a detailed systemic examination was performed with special emphasis on CVS. Children suspected to be suffering from RHD on the basis of History and initial clinical examination were evaluated in detail and subjected to relevant investigations such as Hb, TLC, DLC, ESR, ASO, CRP. X-Ray chest ,ECG & Echocardiography (where needed). Weight of children was recorded for rapid assessment of their nutritional status. Children who were already diagnosed as suffering from RHD (obvious from hospital records) were not further investigated. For the sake of comparison, a 10% sub sample of total school children (constituting 412 children) was selected and studied along with the cases for various risk factors associated with RHD. This sub group was labeled as group II while as RHD cases were labeled as group I. Home visits in both groups were made to assess their socio economic status, housing standards and conditions in which they were living.

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***KEY WORDS** : Rheumatic Heart Disease, overcrowding, ventilation, Valvular lesion, Simple Random Sampling(SRS)*

RESULTS.

Analysis of data revealed that/ out of a total of 4125 school children studied, 21 were found to be suffering from RHD (including 14 old and 7 new cases) giving the total prevalence of 5.09/1000.

AGE AND SEX DISTRIBUTION.

Maximum number of cases (15 cases were found in the age group of 11 to 15 years where as only 6 cases were in 5 to 11 year age group giving a prevalence of 7.8 and 2.7/1000 respectively in these 2 age groups. Male/Female ratio was 1.2:1

SOCIO ECONOIMIC STATUS.

Children of parents belonging to lower income group were more effected compared to those from high income group. (table 3)

HOUSING CHARATERISTICS.

Poor housing was associated with high prevalence of disease. In 61.9 % cases, poor housing standard was observed. Prevalence was maximum in poor ventilated houses. Over crowding in residential houses was present in 57.14% cases.

CLINICAL PRESENTATION.

Breathlessness on exertion was present in most cases (61.9 %) followed by palpitations, fever, joint pains, sore throat and hemoptysis. Out of 21 RHD cases 6 had isolated MS, 2 had isolated MR, 11 combined MS with MR and 2 had combined MS with MR with AR.

Out of 14 old cases who were already diagnosed, 9 cases (64.29%) were receiving secondary prophylaxis in the form of benzathine penicillin regularly, 4 cases (28.52%) were receiving same irregularly while as 1 case was not receiving at all.

DISCUSSION :-

The prevalence of RHD in school children (5 to 15 years age) was 5.09/1000 in our study. ICMR in a multi centric study (1992) found a wide regional variation with average national prevalence rate of 6/1000. our prevalence rate was similar to that reported from Agra and Hyderabad (5.1/1000) but it was less than from Delhi (11/1000) and much higher than that reported from Mumbai (0.8/1000) and Shimla (2.98/1000).[4] A high prevalence rate (7.8/1000) was found in older age group of 11 to 15 years than in the age group of 5 to 10 years (2.7/1000). Similar findings were observed by Vashistha 1993.[5] and Kumar et al[6]. However Thakur et al 1996[7] reported no significant diffrence of prevalence in these 2 age groups. Mean age of patients with RHD in our study was 11.76 ± 2.15 where as same was found to be 12.7± 4.4 and 12.11 ± 3.7 by Zaman 1998[8] and Grover et al[9].

There was no significant difference in the prevalence rate in 2 sexes in our study. Same was reported by Berterand 1979[10]. But a significant female preponderance was found by Al-Sekait 1990 [11] and Oli et al 1990[12] where as a significant male preponderance found by Kumar et al[13].

A high prevalence was found in low income groups compared to middle and high income groups. Similar findings were also reported by Patel 1986[14], Aggarwal 1995 [15] and Berry et al 1972[16].

In our study it was found that RHD was more common in children inhabiting poor class houses (class III) with poor ventilation and over crowding. Longo Mbenza 1998 [17] reported higher prevalence of disease in enitaren living in slums and under poor housing conditions.

Clinically 28.5% cases were asymptomatic while others had complaints like exertional breathlessness, palpitations, fever, joint pains, sore throat, hemoptysis. Patel et al 1986[14] found that 50% of cases were asymptomatic.

The most common valve involved in present study was mitral valve and the commonest lesion was combined MS with MR (53.38%) followed by Isolated MS (28.57%), isolated MR (9.5%) and combined MS with MR with AR (9.5%). No case was found suffering from isolated AR. Vashishtha et al 1993[5] also found that mitral valve involvement was the most frequent (83.33%) Pradeep Kumar 1992[11] found isolated MS (47%) as the common lesion followed by MS with MR (29%), isolated MR (12%)and AR with or without mitral valve involvement (0.2%).

About 64.29% of old cases of RHD in our survey were receiving secondary prophylaxis regularly, 28.52% were receiving it irregularly while as 7.14% were not receiving it at all. Rajesh Kumar et al reported a default rate of 16.4 % while Oli et al [12] reported that 30% of cases of chronic RHD were not receiving secondary prophylaxis.

Conclusion & Recommendation :

We conclude from the study that RHD is an important health problem here, with a prevalence rate of 5.09/1000 which is many times more than in the west. Conditions such as poverty, poor housing including overcrowding, poor ventilation are prime risk factors responsible for the disease. Improvement of socio-economic and living conditions may help decrease spread of the disease. Creating awareness in public (health education) in general and the cases and their parents in particular about the disease is equally important for prevention and early reporting of cases. School health services need to be toned up as they can effectively cover up both primary and secondary preventive aspects of disease. Further a national/state level programme should be introduced for control of Rheumatic fever/RHD as done in cases of other diseases and this should be implemented through primary health care system to control the disease effectively. Further the immediate cost - effective need is to focus on regular secondary prophylaxis in patients with RHD to restrict further morbidity and mortality.

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Update

CHRONIC DIARRHEA (ETIOPATHOGENESIS & MANAGEMENT)

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DEFINITION:
Diarrhea is loosely defined as passage of abnormally liquid or unformed stools at an increased frequency. For adults on a typical Western diet, stool weight exceeding 200g/day can generally be considered diarrheal. Diarrhea may be further defined as acute if <2 weeks, persistent if 2 to 4 weeks, and chronic if >4 weeks in duration.

MAJOR CAUSES OF CHRONIC DIARRHEA ACCORDING TO PREDOMINANT PATHOPHYSIOLOGICAL MECHANISM

Secretory causes

CLUE: Large volume (>1 litre/day); little change with fasting; normal stool osmotic gap

Exogenous stimulant laxatives
Chronic ethanol ingestion
Other drugs and toxins
Endogenous laxatives (dihydroxy bile acids)
Idiopathic secretory diarrhea
Certain bacterial infections
Bowel resection, disease, or fistula ("! absorption)
Partial bowel obstruction or fecal impaction
Hormone-producing tumors (carcinoid, vipoma, medullary cancer of thyroid, mastocytosis, gastrinoma, colorectal villous adenoma)
Addison's disease
Congenital electrolyte absorption defects

Osmotic causes

CLUE: Stool volume decreases with fasting; increased stool osmotic gap
Osmotic laxatives (Mg, PO_4, SO_4)
Lactase and other disaccharidase deficiencies
Nonabsorbable carbohydrates (sorbitol, lactulose, polyethylene glycol)

Steatorrheal causes

CLUE: Fecal fat>7g/24h
Intraluminal maldigestion (pancreatic exocrine insufficiency, bacterial overgrowth, liver disease)
Mucosal malabsorption (celiacsprue, Whipple's disease, infections, Abetalipoproteinemia, ischemia)
Postmucosal obstruction (1° or 2° lymphatic obstruction)

Inflammatory causes

CLUE: Fever, hematochezia, abdominal pain Idiopathic inflammatory bowel disease
(Crohn's, Ulcerative colitis)
Microscopic and collagenous colitis
Immune-related mucosal disease (1° or 2° immunodeficiencies, food allergy, eosinophilic gastroenteritis, graft versus host disease)

Infections (invasive bacteria, viruses, and parasites)

Dysmotile causes

Visceral neuromyopathies
Hyperthyroidism
Drugs (prokinetic agents)

Factitial causes

Munchausen

Bulimia

ETIOPATHOGENESIS

Secretory causes

Due to derangements in fluid and electrolyte transport across the enterocolic mucosa.

(1) Medications:
  Laxatives (bisacodyl, castor oil)
  Chronic ethanol consumption (enterocyte injury)
  Arsenic
(2) Bowel resection, mucosal disease, or enterocolic fistula:
  Inadequate surface for resorption of secreted fluids and electrolyte.
(3) Hormones:

Metastatic gastrointestinal carcinoid tumors or primary bronchialcarcinoids (Intestinal secretagogues like serotonin, histamine, prostaglandins, and kinins)

  Gastrinoma (fat maldigestion, secretagogues)
  VIPoma
  Medullary carcinoma thyroid (calcitonin, prostaglandins)
  Systemic mastocytosis (histamine)
  Colorectal villous adenoma (prostaglandins)
(4) Congenital defects in ion absorption
  Defective $Cl^-/HCO3^-$ exchange
  Defective Na/H exchange

Osmotic causes

Occurs when ingested, poorly absorbable, osmotically active solutes draw enough fluid lumenward to exceed the resorptive capacity of the colon.

(1) Osmotic laxatives:
  Ingestion of magnesium-containing laxatives or antacids.
(2) Carbohydrate malabsorption
  Acquired or congenital defects in brush-border disaccharidases (lactase deficiency)
  Sorbitol
  Lactulose

Steatorrheal causes

Caused by the osmotic effects of fatty acids, especially after bacterial hydroxylation, and, to a lesser extent, by the burden of neutral fat.

(1) Intraluminal maldigestion:

Pancreatic exocrine insufficiency when >90% of secretory function is lost. Blind-loop, small bowel diverticulum, or dysmotility lead to stasis (Bacterial overgrowth in the small intestine may deconjugate bile acids and alter micelle formation that impair fat digestion) Cirrhosis or biliary obstruction (Deficient intraluminal bile acid concentration)

(2) Mucosal malabsorption:
  Celiac sprue
  Tropical sprue (Infectious etiology suggested)
  Whipple's disease (T. whippleii)
  M. avium intacellulare in AIDS
  Abetalipoproteinemia (defect in chylomicron formation) Giardia
  Drugs (colchicine, cholestyramine, neomycin)
  Chronic ischemia
(3) Postmucosal lymphatic obstruction

Inflammatory causes

Mechanism of diarrhea may not only be exudation, but depending on lesion site, may include fat malabsorption, disrupted fluid/ electrolyte absorption, and hypersecretion or hypermotility from release of cytokines and other inflammatory mediators.

(1) Idiopathic inflammatory bowel disease:
  Crohn's disease
  Chronic ulcerative colitis
  Microscopic colitis
(2) Primary or secondary forms of immunodeficiency
  May lead to prolonged infectious diarrhea
  Common variable hypogamaglobulinemia (often result in giardiasis)
(3) Eosinophilic gastroenteritis
(4) Other causes
  Radiation enterocolitis
  Chronic graft versus host disease
  Behcet's syndrome

Dysmotile causes

Hyperthyroidism }
Carcinoid syndrome }
} Hypermotility
Drugs (prostaglandins, prokinetic agents) }

Causes of Chronic Diarrhea in the Tropics

- Giardia lamblia
- Tuberculosis
- Enteropathic E. coli
- Tropical malabsorption
- Chronic calcific pancreatitis
- HIV enteropathy
- Intestinal flukes
- Strongyloidiasis
- Chronic intestinal schistosomiasis
- Hypolactasia (primary & secondary)

DIAGNOSIS

HISTORY

PHYSICAL EXAMINATION

Clues to diagnosis from symptoms, associated diseases, and physical findings

Associated with diarrhea	Diagnosis to be considered
SYMPTOMS:	
Fever	Ulcerative colitis, Crohn's, Amebiasis, lymphoma, TB, Whipple's, other enteric infections, thyrotoxicosis
Marked Wt. loss	Malabsorption, Inflamm. bowel disease, cancer, Thyrotoxicosis
Flushing	Malignant carcinoid syndrome, phaeochromocytoma, pancreatic cholera Syndrome

ASSOCIATED DISEASES OR TREATMENT RESPONSES:

Liver disease	Ul. Colitis,

	Crohn's, Bowel malignancy with metastasis to liver
Collagen vascular disease	Mesentric vasculitis
Chronic lung disease	Cystic fibrosis
Peptic ulcer disease	Zollinger-Ellison syn.
Frequent infections	Immunoglobulin Deficiency
Good response to corticosteroids	Ul. Colitis, Crohn's, Whipple's, Addison's, eosinophilic gastroenteritis, celiac sprue, collagen vascular diseases
Good response to Antibiotics	Blind loop syn., Tropical sprue, Whipple's, giardiasis

PHYSICAL FINDINGS:

Arthritis	Ul. Colitis, Crohn's, Whipple's, Collagen vascular diseases
Systemic atherosclerosis	Ischemic injury to gut
Lymphadenopathy	Lymphoma, Whipple's, AIDS
Autonomic/Peripheral neuropathy	Diabetic diarrhea, amyloidosis
Postural hypotension	Diabetic diarrhea, Addison's
Erythema	Systemic mastocytosis, Glucagonoma syn.
Hyperpigmetation	Whipple's, Addison's, Celiac sprue

ROUTINE INVESTIGATIONS

Complete blood count	– anaemia→blood loss or nutritional deficiency –leukocytosis→suggests inflammation –eosinophilia→parasitoses, neoplasia, collagen vascular disease, allergy, eosinophilic gastroenteritis
Chemical screen	–hyponatremia & hyperkalemia (adrenal insufficiency) _ hypoproteinemia (favours an organic cause) _ hypocalcemia (suggests malabsorption) _ hypercalcemia (WDHA syndrome, combination of hyperparathyroidism and Zollinger-Ellison syn. in MEN 1)
Stool Examination:	Quantitative stool collection ↓ (if wt. >200g/day) ↓ Analyses→Ova & cysts, electrolyte conc., pH, occult blood, leukocyte inspection, fat quantitation, and laxative screens

DIAGNOSTIC TESTS IN PATIENTS WITH DIARRHEA

TEST	DISORDER DETECTED OR SUGGESTED
Plain film of abdomen (pancreatic calcification)	Pancreatic insufficiency due to chronic pancreatitis
Small bowel radiographic series	Crohn's disease Large duodenal folds (suggestive of Zollinger Ellison syn.) Deficiency pattern (suggests diffuse mucosal disease)
Small bowel biopsy	Celiac sprue Tropical sprue Collagenous sprue Whipple's disease Lymphoma Giardiasis Mastocytosis Intestinal lymphangiectasia
Duodenal aspiration	
☐ Microscopy	Giardiasis
☐ Quantitative anaerobic culture	Bacterial overgrowth
Secretin test	Pancreatic insufficiency
Lundh's test meal	Pancreatic insufficiency
Quantitative immunoglobulin determination	Immunoglobulin deficiency syn.
Serum carotene level	Malabsorption
D-Xylose absorption test	Malabsorption
Schilling's test of Vitamin B12 absorption	Malabsorption
H2 breath test	Carbohydrate malabsorption
Lactose tolerance test	Lactase deficiency

TREATMENT:

Treatment depends on specific etiology and may be curative, suppressive, or empiric

CURATIVE e.g. resection of colorectal CA; antibiotics for Whipple's, Tropical sprue & Giardiasis; ATT for intestinal TB; discontinuation of offending drug

SUPPRESSIVE e.g. elimination of dietary lactose for lactase deficiency or gluten for celiac sprue, glucocorticoids or other anti-inflammatory agents for idiopathic inflammatory bowel disease; pancreatic enzyme replacement for pancreatic insufficiency

EMPIRIC THERAPY

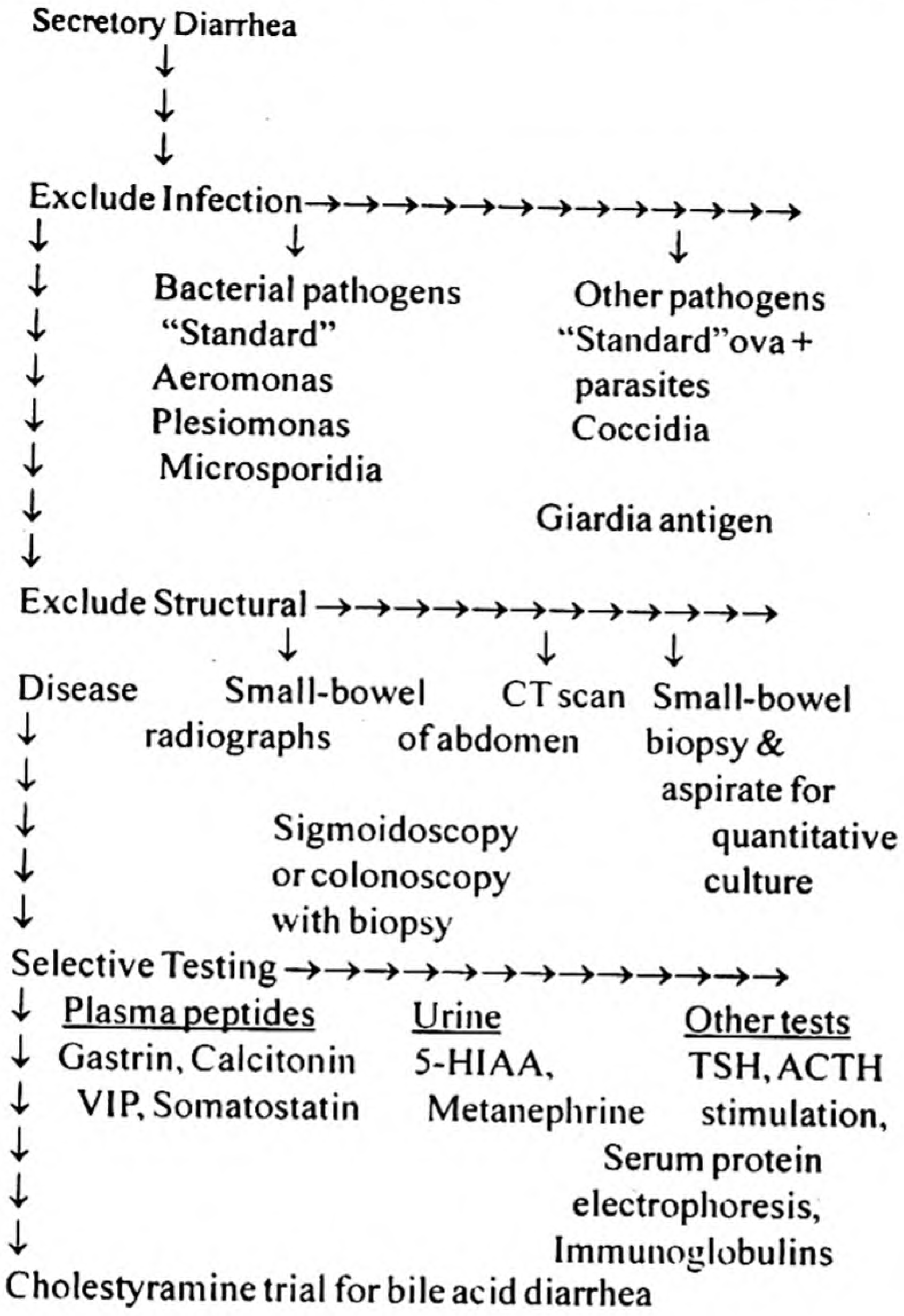
Is used in three situations:

(1) as temporizing or initial treatment before diagnostic testing

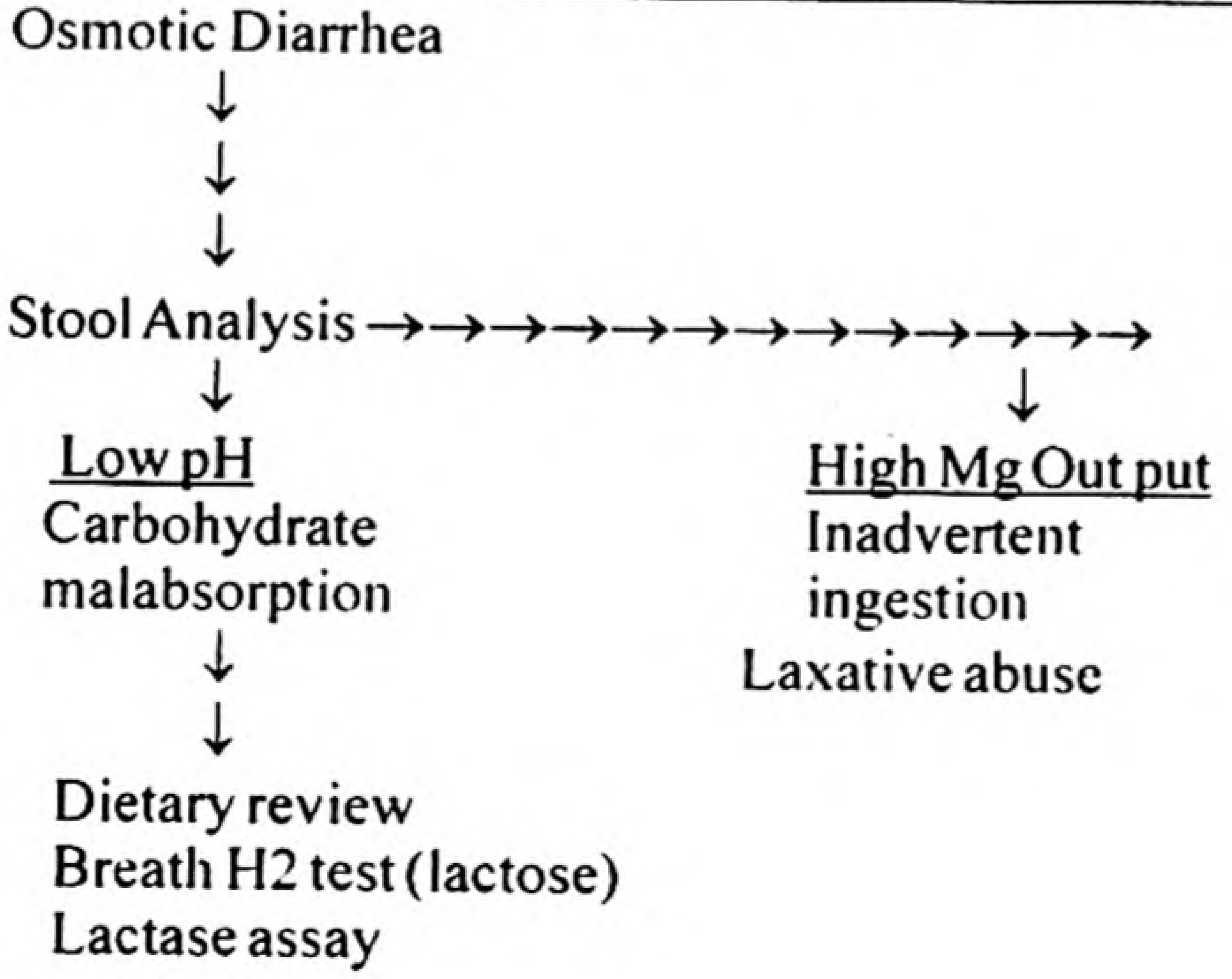
(2) after diagnostic testing has failed to confirm a diagnosis

(3) when a diagnosis has been made but no specific treatment is available or specific treatment has failed to produce a cure

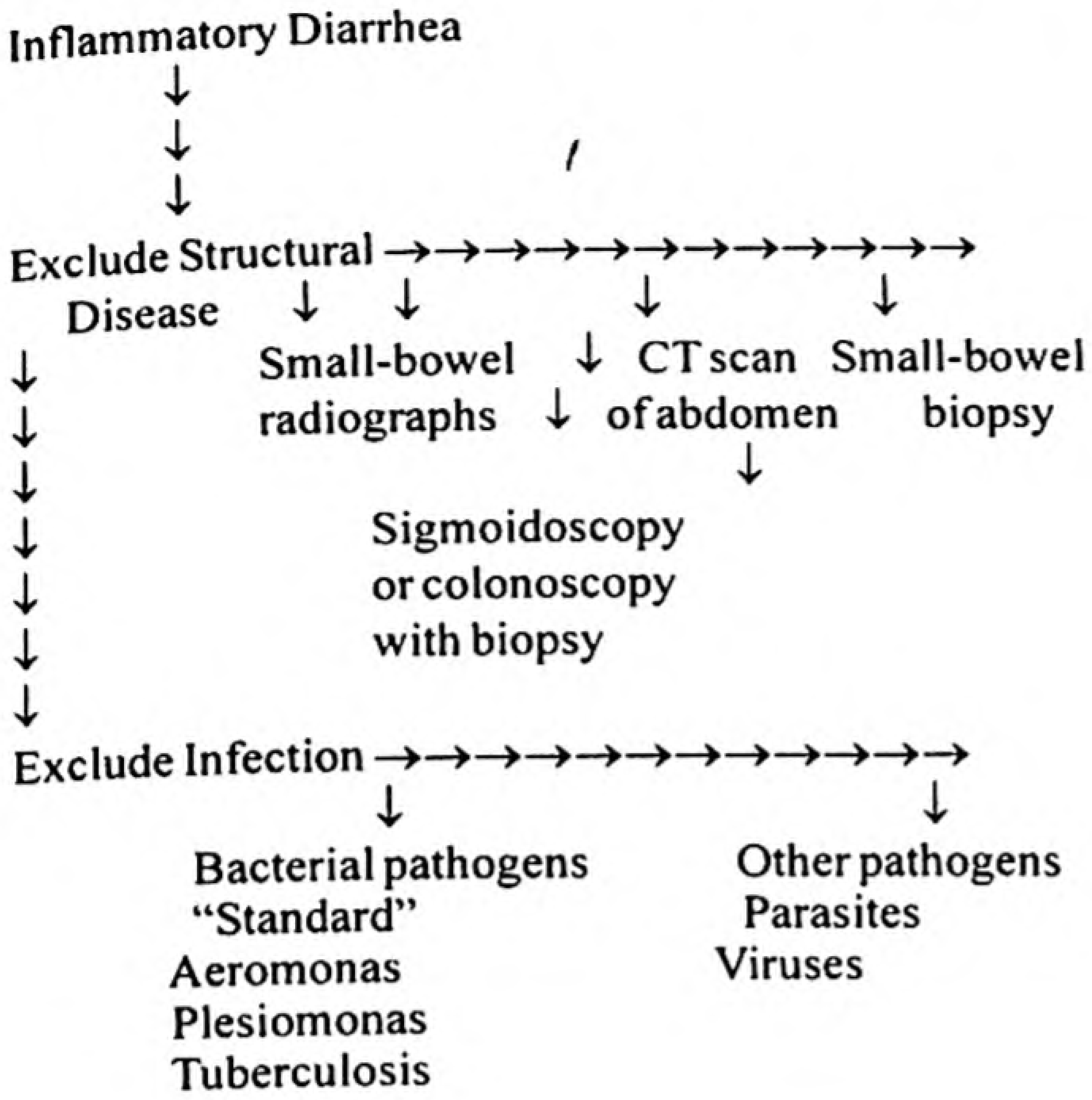
FLOW CHART FOR THE EVALUATION OF CHRONIC SECRETORY DIARRHEA


Secretory Diarrhea
Exclude Infection
Bacterial pathogens
"Standard"
Aeromonas
Plesiomonas
Microsporidia
Other pathogens
"Standard"ova +
parasites
Coccidia
Giardia antigen
Exclude Structural
Disease
Small-bowel
radiographs
CT scan
of abdomen
Small-bowel
biopsy &
aspirate for
quantitative
culture
Sigmoidoscopy
or colonoscopy
with biopsy
Selective Testing
Plasma peptides
Gastrin, Calcitonin
VIP, Somatostatin
Urine
5-HIAA,
Metanephrine
Other tests
TSH, ACTH
stimulation,
Serum protein
electrophoresis,
Immunoglobulins
Cholestyramine trial for bile acid diarrhea

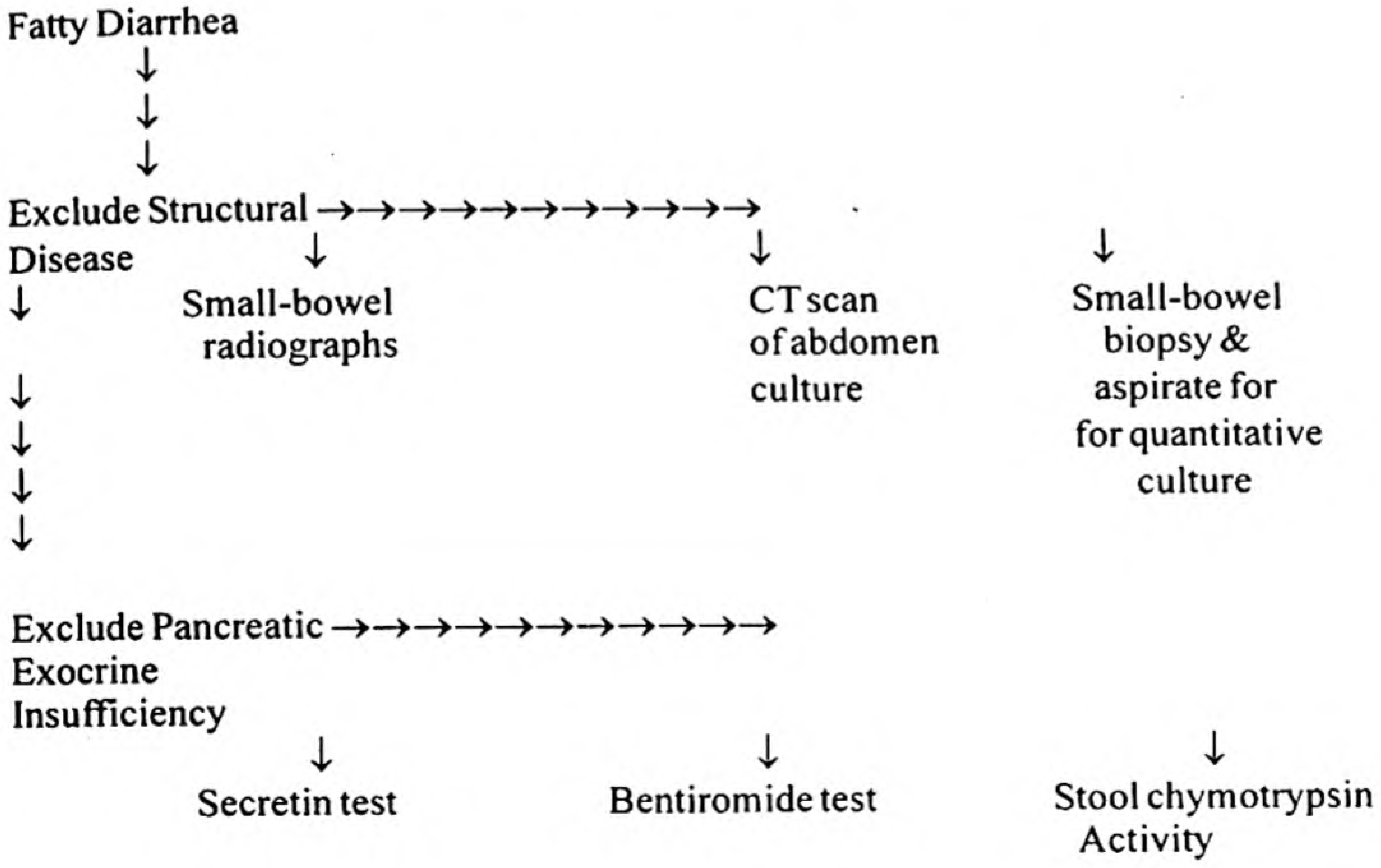
FLOW CHART FOR THE EVALUATION OF CHRONIC OSMOTIC DIARRHEA


Osmotic Diarrhea
Stool Analysis
Low pH
Carbohydrate
malabsorption
Dietary review
Breath H2 test (lactose)
Lactase assay
High Mg Out put
Inadvertent
ingestion
Laxative abuse

FLOW CHART FOR THE EVALUATION OF CHRONIC INFLAMMATORY DIARRHEA


Inflammatory Diarrhea
Exclude Structural Disease
Small-bowel radiographs
CT scan of abdomen
Small-bowel biopsy
Sigmoidoscopy or colonoscopy with biopsy
Exclude Infection
Bacterial pathogens
"Standard"
Aeromonas
Plesiomonas
Tuberculosis
Other pathogens
Parasites
Viruses

FLOW CHART FOR THE EVALUATION OF CHRONIC FATTY DIARRHEA


Fatty Diarrhea
Exclude Structural Disease
Small-bowel radiographs
CT scan of abdomen culture
Small-bowel biopsy & aspirate for for quantitative culture
Exclude Pancreatic Exocrine Insufficiency
Secretin test
Bentiromide test
Stool chymotrypsin Activity

Non-specific Therapy for Chronic Diarrhea

Drug Class	Agent	Dose
μ- Opiate receptor selective	Diphenoxylate	2.5-5 mg qid
	Loperamide	2-4 mg qid
	Codeine	15-60 mg qid
	Morphine	2-20 mg qid
	Opium tincture	2-20 drops qid
Enkephalinase inhibitor	Racecadotril (acetorphan)	1.5 mg/kg tid
Adrenergic agonist	Clonidine	0.1–0.3 mg tid
Somatostatin analogue	Octreotide	50-250μg s/c tid
Bile acid-binding resin	Cholestyramine	4mg qd to qid
Fiber supplements	Psyllium	10-20g daily
	Calcium polycarbophil	5-10g daily

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Advance

Advances in Radiographic Anatomy

Ashfaq Ul Hassan, Ghulam Hassan, M. Shafi

- **ADVANCES IN ULTRASONIC TECHNIQUES.**

Modern time ultra sound has undergone a big change. From a non invasive technique it is gradually evolving into an invasive technique. After the advent of routine Ultra sonography **, Ultra sound guided biopsies** are now a big relief for pathologists and diagnosis of suspected masses has now become easier. Also **ultra sound guided aspiration** of cystic masses etc is routinely done now a days. Going inside the lumen i.e. **Endoluminal ultrasonography** has allowed the imaging of anatomy by inserting small ultrasonic probes into the major vessels or other body lumina to visualize nearly all organ systems of the body. Ultrasound probes are designed to pass through the instrument channel of ordinary fiberoptic or video endoscopes. **Intravascular ultrasonography (IVUS)** is a new imaging system composed fundamentally of a miniature ultrasound transducer mounted at the end of a catheter.. This catheter-based system, when introduced into an adequately sized blood vessel, produces real-time, two-dimensional (2D), cross-sectional images of the vascular structure. High-resolution images of vascular lumen, vessel wall, and vascular plaque are achievable

- **Applications for IVUS include guiding and evaluatingendovascular interventional procedures,**
- **correlating IVUS results with histology in diseased vessels,**
- **early detection and sonographic tissue characterization of atherosclerosis**

In specialized centres now, IVUS systems combined with other **catheter-based therapeutic endovascular devices (e.g., angioplasty, atherectomy) are also under development.**

TRUS (Trans Rectal Ultrasound) of Prostate is one of the latest techniques for diagnosis of Prostatic Hyperplasia or Prostatic Cancer.

With new techniques in **transvaginal US**, higher resolution allows earlier diagnosis of fetal developmental anomalies. **Transvaginal echography** is used to examine asymptomatic patients at risk for repeated abortion in the first trimester of pregnancy. It has been established that a reliable echographic finding—the normal sequential appearance of the yolk sac of the embryo and the presence of normal fetal heart activity—can be used prognostic ally for the future course of pregnancy.

Transvaginal US is playing an increasingly important role in detecting congenital heart defects among patients with high risk for fetal anomalies.

Transvaginal US in the early second trimester is a useful tool both for

1. **detecting fetal cardiac structural defects**
2. **for providing anatomic evaluation of multiple organ systems in fetal development**

US examination of the fetal heart has become increasingly sophisticated. To provide finer details, **Fetal echocardiography** is now critical in making an early and accurate assessment of cardiovascular structure. A complete fetal echocardiographic study should include the structural and rhythm analysis using a combination of 2D imaging, M-mode scanning, pulsed- and continuous-wave Doppler measurements, and color-flow mapping.

Other endoluminal US modalities **transrectal or transesophageal US** may also be used to assess extraluminal anatomy and pathology, within the limits of the depth of penetration of the transducer. US probes are best used for high-resolution imaging of focal endoscopically visible lesions. Endoscopic visualization enables direction of the probe to the lesion of interest.

- **ANGIOGRAPHIC TECHNIQUES.** Angiography or

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visualization of vessels after injection of a contrast material ionic or non ionic was used primarily for Aortic, Carotid and Vertebral Arterial systems, it has now been improvised upon. **Digital subtraction angiography (DSA)** is a valuable and frequently used diagnostic technique that allows the physician to evaluate vascular anatomy and pathology. More recently 3D time-of-flight **magnetic resonance angiography (MRA) and intra-arterial DSA** have been used to compare pre- and postoperative evaluation of the carotid bifurcation. MRA capitalizes on the fact that blood flow through arteries is fast and through veins is slow and this produces a difference in signal. Although MRA is emerging as an accurate modality for **imaging carotid bifurcations, detection of intra cranial aneurysms and vascular malformations**

Color-flow duplex surveillance of graft patency is a valuable tool to evaluate peripheral bypass procedures. For example, color-aided duplex **Doppler sonography** is valuable to rule out transplant renal artery stenosis and to determine the feasibility and safety of intra-arterial DSA in hypertensive renal allograft recipients on an outpatient basis. This imaging modality allows **renal angiography** to be reserved to those patients with an inconclusive US study.

Contrast-enhanced electron-beam computed tomography (CT) (100-msec scan time) is an **ultrafast CT method** which, among other applications, can effectively and non invasively assess the clinical diagnosis of pulmonary embolism.

➢ MAGNETIC RESONANCE IMAGING (MRI)

The Phenomenon of MRI is a complexinteraction between protons in biological tissues , a magnetic field and energy in the form of radiofrequency waves of specific frequency . Remarkable progress has been made in the methods and equipment used to acquire MR images. With improvements in image quality and methods for achieving tissue contrast between healthy and abnormal tissue and decreases in the amount of time to acquire such images, MRI has become a powerful tool for clinical diagnosis.

MRI has some advantages over CT.

- It gives greater soft tissue contrast
- More sensitive in detecting early brain damage.
- Preferable in patients with neurodeficit
- Three dimensional volumetric imaging is possible with MRI.

Four areas that should experience rapid growth during the next several years are (1) cardiac imaging of function and coronary angiography (2) brain functional imaging, (3) spectroscopic imaging of metabolite content in human brain, and (4) high field high-resolution imaging. Just as much of the progress over the last 10 years was made possible by the availability of higher field superconducting magnets (0.5T to 1.5T) as opposed to their lower field resistive counterparts, similar improvements should be expected from the increasing use of the next generation of high field magnets, 3T and above. These improvements will be manifested as signal-to-noise ratio improves and spatial resolution increases

➢ **Spiral CT** has revolutionized CT scanning by making it possible to scan large volumes in a short span of time and 2-D OR 3-D reconstructions are possible in any plane. The unique method of data collection of the spiral CT scanner has been combined with dynamic intravenous (IV) contrast material bolus protocols **to image the abdominal vasculature, including the aorta, renal arteries, and splanchnic circulation.**

Through various techniques of image processing, including surface renderings and maximum intensity projection (MIP) image display, it is possible to obtain excellent anatomic detail of the aorta and its major branches. Vessel contrast on spiral CT scans is excellent and can be used in

- evaluating renal artery stenosis,
- the degree of carotid artery stenosis and
- other pathologic conditions including celiac bypass graft occlusion, abdominal aortic dissection, and abdominal aortic aneurysm.

➢ BRAIN FUNCTIONAL IMAGING

It has been demonstrated that images collected using a gradient echo sequence are sensitive to the oxygenation state of the cerebral venous system. Specifically, regions that increase their oxyhemoglobin: deoxyhemoglobin ratio show increases in image signal intensity. When performing a mental or physical task, blood flow to the affected area of the brain increases, typically outstripping the requirement for oxygen utilization. This in turn causes the venous system to have a higher oxyhemoglobin: deoxyhemoglobin content, thereby enhancing its signal intensity. By subtracting images acquired before and during the activating task, the region of the brain associated with the task is highlighted. **This method has been used to localize the effects of visual stimulation, various motor functions, and word association.** The activation (those regions of the brain that show a significant increase in signal) is thresholded and then overlaid on a high-resolution anatomic image for reference.. These methods have been used primarily as a tool for mapping cortical function in healthy subjects; however, their application in patients with neurologic disorders and the localization of the affected regions and their relative function is virtually limitless.

SPECTROSCOPIC IMAGING. There has been a dramatic expansion in the number of MRI systems that can perform spectroscopic measurements that permit the measurement of low concentration of cerebral metabolites. **In epilepsy**, measurements of N-acetyl aspartate (NAA), a specific marker for neurons, has allowed a noninvasive determination of neuronal loss, permitting lateralization of the affected areas. Similar measurements in **Alzheimer's disease** may also prove useful in localizing affected brain regions.

In multiple sclerosis, measurements of choline—a compound that becomes elevated during membrane breakdown—permits an assessment of the degree of active demyelination.. Recent methods have permitted the planar and multislice imaging of these compounds. Seizure foci can be determined by using spectroscopic imaging. By acquiring spectroscopic data in an image format, regions of the brain showing selective neuronal loss or membrane breakdown can be visualized. These spectroscopic images, when combined with high-resolution MRI, provide a correlation between anatomic and metabolic alterations.

Ø **HIGH-RESOLUTION IMAGING**. The improved signal-to-noise ratio permits images of the human brain with 250 to 500 mM in plane resolution . The higher resolution improves visualization of the basal ganglia and thalamus, frequently the site of small strokes **The images display excellent definition of a number of anatomic features of the brain (caudate head, globus pallidus, and putamen).** The greater spatial resolution and gray/white matter contrast combine to **improve the definition of the hippocampus, critical to diagnose temporal lobe** epilepsy. Specifically, the **parahippocampal gyrus, Corno Ammonis horn with the alveus extending into the fornix, the subiculum, and the overlying superficial medullary stratum are well defined.** The enhanced T2 contrast

1. improves visualization of iron-rich structures such as the red nuclei and substantia nigra, which may aid in the diagnosis of idiopathic Parkinson's disease
2. enable visualization of small cerebral vessels, which are not detectable in conventional clinical imaging studies Although the number of high field systems at this time is limited, their potential for expanding our knowledge of disease states through imaging is significant

ADVANCES IN NUCLEAR MEDICINE IMAGING

Ø **BRAIN SPECT APPLICATIONS.** Nuclear medicine imaging promises to evolve owing to the development of better imaging equipment and innovative tracers for diagnosing disease. The most rapid evolution of equipment has occurred in the area of **single photon emission computed tomography (SPECT)** and the associated radionuclides suitable for SPECT imaging.

SPECT imaging can be performed by using a standard camera acquiring multiple views of the radiotracer distribution over 360 degrees and reconstructing the radioactivity distribution of 3D space. The data are stored in a pixel matrix that can be displayed in the transverse, coronal, and sagittal planes.

Radionuclide tracers have also advanced, significantly enhancing disease diagnosis. The radionuclide **technetium-99m hexamethy- lpropyleneamine oxime (Tc-99m HMPAO)** is a brain blood flow tracer which is extracted by the brain in proportion to regional cerebral blood flow **(rCBF).** Brain rCBF evaluation is extremely useful clinically to evaluate the diagnosis of many central nervous system diseases including **dementia, cerebrovascular disease, epilepsy, and psychiatric disorders.**

Brain SPECT is possible because of rapid uptake of the tracer Tc-99m HMPAO .Owing to the irreversible binding and non redistribution, this isotopic distribution is the end result of the actual brain SPECT image, which may commence many minutes after tracer injection and requires approximately 30 minutes acquisition time.

The rCBF uptake pattern over a short time interval within the same subject is highly reproducible because the anatomy, location of brain functional regions, and brain metabolic activity do not appear to change significantly. This makes the tracer Tc-99m HMPAO especially well suited for brain activation studies because the change in distribution between mental states can yield information regarding which brain regions are responsible for the specific functional state under study. Clinically, mental stress activation has been useful to help diagnose psychiatric disease because tasks directed toward activating functionally abnormal brain regions show characteristic abnormal activation patterns.

Regional CBF brain SPECT **can identify patients at risk for stroke who may benefit from neurosurgical revascularization procedures.**

During the stress scan the vascularly comprised territories of brain blood flow show a relative decrease in tracer uptake compared with the rest scan.

Functional metabolic abnormalities and rCBF changes have been known to occur in **partial seizures** for many years. The rationale for injecting Tc-99m HMPAO during the ictal phase of a seizure is based on the observation that rCBF is temporally and focally increased during the ictal phase of seizure in patients with extra-temporal lobe epilepsy.

The precise region of this neuronal hyperexcitability can be localized because Tc-99m HMPAO has rapid uptake without redistribution. Therefore, the patient can be stabilized after the seizure, and the subsequent brain SPECT scan several hours later reflects the dramatic increase in rCBF which occurred during the first few seconds of the seizure (not the actual rCBF at the time of the scan).

This injection and scan procedure is most revealing in extratemporal lobe epilepsy patients without clear localization by any other laboratory or imaging criteria.. In patients undergoing limited brain resection guided by the abnormal rCBF brain SPECT scan, the ictal SPECT findings accurately localize the brain region responsible for seizures, as confirmed by the pathology of the resected tissue as well as the seizure-free postsurgery course.

Cerebral necrosis following brain tumor therapy is a significant problem because **distinction between necrosis and residual or recurrent viable tumor** cannot be accurately evaluated by either CT or MRI. Functional imaging of metabolic activity allows clear distinction between new, recurrent, or residual, viable, high-grade glioblastoma from brain necrosis. Therefore a variety of metabolic imaging protocols now play a central role in **distinguishing cerebral necrosis from viable brain tumor, determine tumor grade and viability status and measuring tumor size**. SPECT imaging using the radioisotopes **thallium-201 (Tl-201) and Tc-99m 2-methoxy-isobutyl-isonitrile (Tc-99m MIBI)** have been shown to be both sensitive and specific for detecting viable portions of high-grade brain tumor.

Brain SPECT has also made significant advances in using neuronal receptor-binding tracers to evaluate brain disease. The iodine-123–labeled tracer ((S)-(−)-3-iodo-2-hydroxy-6-methoxy-N-[(1-ethyl-2-

pyrrolidinyl)-methyl]benzamide [iodine-123 IBZM]) is an example of a tracer that can map the dopamine D-2 receptor and has been used to **investigate dopamine receptor distributions in movement disorders and schizophrenia.**

Muscarinic acetylcholine receptor distribution in Alzheimer's disease has been evaluated using the iodine-123-labeled tracer ((R)-3-quinuclidinyl-4-iodobenzilate [iodine-123 QN).

The central benzodiazepine receptor distribution in epilepsy patients has been evaluated with iodine-123–labeled iomazenil. These tracer studies have elucidated the role of neurochemical receptors in the pathogenesis of neurologic and psychiatric disorders; this understanding is important for development of pharmacologic therapies specifically targeted for these receptors.

➢ MOLECULAR NUCLEAR MEDICINE IMAGING.

Nuclear molecular imaging is an expanding new area of nuclear medicine that holds significant promise for non invasively evaluating molecular events in the human body. Monoclonal antibodies have played an important role in the development of this target-specific imaging method. Recently a radiolabeled monoclonal antibody, **indium-III CYT-103 (OncoScint CR/OV), has been approved for clinical imaging of colorectal and ovarian carcinoma**

➢ POSITRON EMISSION TOMOGRAPHY (PET):

This imaging procedure used in some centres in USA and UK provides a clinical tool for detecting and **evaluating primary and metastatic cancers, localizing epileptogenic foci, detecting metastasis, determining cardiac viability, detecting focal areas decreased FDG Uptake consistent with Dementia of Alzhimers type .** PET relies on detection of positrons emitted during decay of a radionuclide injected into a patient A new generation of PET scanners that have introduced whole-body PET to the clinical setting has increased interest in developing protocols for the evaluation of both intracranial and somatic cancers. The value of PET in clinical oncology has been demonstrated with studies in a variety **of cancers, including colorectal carcinoma, lung cancer, head and neck cancer, primary and metastatic brain tumor, breast carcinoma, lymphoma, melanoma, bone cancer, and other soft tissue cancers** A variety of radiopharmaceuticals are currently included in clinical tumor-imaging protocols, including metabolic substrates such as **fluorine-18 fluorodeoxyglucose** (fluorine-18 FDG).Other investigations that will continue to demonstrate promise are those using true chemical composition of the tracer molecule to maintain biologic specificity of uptake. **Incorporating carbon-11, oxygen-15, and nitrogen-13 into radiopharmaceuticals,** for example, will allow production of numerous specific ligands to evaluate protein-specific receptors or metabolic pathways.

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Letter to the Editor

HEALTH SERVICES IN KASHMIR : NEED FOR COORDINATION IN COMBATING ZOONOTIC INFECTIONS

Health Seenario in India especially Kashmir :

National health policy was formulated in 1983 and implemented throughout India including the state of J&K[1]. With regards to the infectious/zoonotic diseases in the J&K state, leprosy is less prevalent in Kashmir, whereas Tuberculosis (T.B) continues to be a big problem in the valley. Mortality with T.B. is more than the commonly prevalent diseases in India. Almost one thousand people infected with T.B die daily in India and incidence is becoming horrible when Human Immunodeficiency Virus (HIV) along with T.B assumes epidemic proportions[2]. Small pox has been completely eradicated whereas polio and leprosy are on the verge of being eradicated in India. However, gastro-enteritis, cholera, rabies, malaria and hepatitis continue to cause high morbidity and eventual mortality. Incidence of deadly *P falciparium* malaria has risen to about 50% in the country because of insecticide resistance in malarial vectors[3]. Although malaria is non-existent in the valley but it is an important public health problem in the Jammu region and needs to be given priority as number of persons move in and around the state (SPM 2002).

In Kashmir, we can boast of best tertiary health care system but our primary health services are rudimentary, lack infrastructure and related material inputs. Technical network with respect to the disease surveillance in lagging and limited statistical purpose is evolved in these disease surveillance programmes. Recently the state of J&K has been hooked to the National Disease Surveillance Network, which envisages interconnectivity between different ties of the network for instant data collection, interpretation and timely remedial measures[3].

Common Zoonotic diseases and their importance in relation to human health

Zoonoses is an important group of infectious diseases within the broader domain of veterinary public health. FAO/WHO expert committees call it "the infectious diseases that are naturally transmitted between animals and man". Veterinary health in general is a component of public health activities that uses veterinary skills, knowledge and recourses for the protection and improvement of human health[4]. During the last 20 years, 70% of the emerging diseases have been found to be zoonotic in nature and about 300 diseases are common to man and animals[5]. Bubonic plague (Black Death), typhoid, malaria, gastrointestinal and sexually transmitted diseases have caused havoc in medieval times and interestingly all have animal origins[6].-in recent times AIDS/HIV, mad cow disease and bird flu have caused major social turmoil/stigma.

The problem of zoonosis is further compounded on account of poor health care infrastructure existing in our country especially the state of J&K. Zoonosis affect in a variety of ways to man. The diseases cause illness, delays, termination, monetary losses in the form of cost of drugs and physician's fee, loss of wages and work efficiency, medico-legal complications and unfavorable publicity. In animals major impact relates to loss of production, loss of breeding efficiency and lowering of drought efficiency[7].

T.B, rabies, Japanese encephalitis, rickettsiosis, salmonellosis, brucellosis, leptospirosis, plague, dermatomycosis, histoplasmosis, aspergillosis, leishmoniosis, toxoplasmosis, cysticercosis, echinococcus, campylobacteriosis, candiasis, coocidiodomycosis, microsporidiosis, pneumocytosis, strongyloidosis are major zoonotic disease in India. Newly emerging pathogens with zoonotic importance have been recorded in India viz gastroenteritis virus, tick borne encephalitis virus, multi drug resistant tuberculosis, BSE, avian influenza and AIDS[8].

To assess the coordination for combating the infectious/zoonotic diseases in human beings, it must be kept in the mind that most of the diseases are fundamentally diseases of vertebrate and invertebrate wildlife[9]. Awareness of veterinary knowledge brought great sanitary awakenings and gradually the concept of "One medicine" was evolved, wherein experiences of physicians, veterinarians and other medically oriented scientists were shared. Rudoif Virchow - Father of modern pathology says that "between animal and human medicine there is no dividing line nor should there be. The object is different but the experience obtained constitutes the basis of all medicine"[10]. In the past great epidemics of infectious diseases have been conquered with new ones emerging in different parts of the globe. Decades ago, T.B., glanders, rabies, anthrax, FMD, hog cholera and canine parvovirus were the primary zoonotic targets. Now HIV, bovine spongiform encephalopathy (BSE) and avian influenza are important in current times. So advanced veterinary expertise and control strategies are important in containing the zoonotic infections[11].

The factors affecting the probability of zoonotic occurrence include: duration of illness, virulence of the pathogen, stability of the agent in a given environment, density of animal and human population in a locality, animal husbandry & agricultural practices, presence of vectors and rodents, technological and economic diversification, urbanization and international mobility of humans, livestock and livestock products, inadequacy of diagnosis and' other health services, genetic component of pathogens and route of transmission of the diseases). Economic development (dams, roads and deforestation) and rapid social development have provided opportunities to zoonotic pathogens to emerge and spread rapidly in the human as well as animal populations. Moreover, indiscriminate use of antibiotics, insecticides and other chemicals has lead to an alteration in the existing microbial ecology. Green house effect may change the density pattern of the microbes and vectors of the transmissible diseases. Increased densities of ticks and other insects facilitate rapid spread of arthropod borne infections. Higher rodent populations have enhanced the prevalence of leptospirosis and salmonellosis[12].

All factors stated above make it amply clear that the emergence of zoonotic diseases remains unpredictable. Small pox and monkey pox have always co-existed in Zaire, however, eradication of small pox, led to the emergence of monkey pox as a cause of disease in human being[13].

Coordination in control of Zoonotic diseases

Since we know that in developing countries, meat consumption has increased three times from 1970 to 1990. Extreme pressure on animal production has led to processing of offal and dead animals as "bovine feed constituent" leading to the emergence of BSE, as a potent zoonotic disease. Early strategies of disease prevention paved way for the development of meat inspection. Von Ostertag's first meat inspection act of 1900 drastically reduced the incidence of bovine tuberculosis in human beings[14].

Similar management of zoonotic diseases in well organized surveillance system is essential component of the disease control and diagnosis of zoonotic diseases in animals and men[15,16]. The zoonotic surveillance system with organizational skill has following components:

- Animal disease surveillance (animal health)
- International / National trade in animals (animal quarantine)
- Monitoring and control of food quality (meat/milk inspection)
- Control of animal feeds (feed standards)

Different forums are associated with the issue of combating infectious disease at international level. World Health Organization (WHO), Food and Agricultural organization (FAO) and office International des epizootics (OIE) are mainly concerned with the infectious diseases control[11,17]

Some of the guidelines listed by these organizations are as:

- To inform governments about the occurrences and course of animal diseases throughout the world and ways to control these diseases.
- To coordinate at the international level and make studies devoted to the surveillance and control of animal diseases.
- To harmonize regulations for trade in animals and animal products among member countries.

An activity chart mandatory for member countries wherein some zoonotic diseases have surfaced are short listed as:

- Developing a case definition, case finding, animal trace forward and trace back investigation, defining routes and risks of infection and documenting the clinical spectrum of illness.
- Human case isolation, identifying and tracking human contracts for illness, clinical infection control, animal care and contract quarantine, environmental decontamination, vaccination of staff and contracts.
- Identification of ill animals, preventing animal release or escape, isolation, disinfection and / or destruction of bedding and waste and surveying local mammals.
- Establish regional co-ordination group for joint decision making, resources and information sharing.
- Establish veterinary task force in charge of emergency control, contingency and response plan.
- Involvement of GIS, internet and networking of info agencies at national or international levels for sharing information on disease distribution pattern in various parts of the world.
- A "zoning" approach to expand free areas while driving the disease into smaller and smaller pockets.
- Strategic vaccination of human as well as animals.
- Stamping out policy for infected animals- valuation, disposal, disinfection, bio-security and animal welfare.
- Wildlife management, as massive killing of wild life causes famine and faired crops since wild animals control crop pests.
- Rehabilitation plans for rebuilding the animal husbandry sector and again putting the animal industry in a more bio-secure position and protect human livelihood.
- Genetic control of diseases by developing disease resistant breeds and by manipulating density of vector agents, e.g producing and releasing sterile males to control diseases like screw worm disease and malaria.
- Nutritional aids to disease control e.g supply of balanced rations.
- Establishment of Integrated Disease Management (IDM) strategy, aiming at integrating various approaches used in disease prevention, control and elimination. Thus IDM would include isolation of sick + quarantine + disinfection + immunization + biological control + genetic control + environmental sanitation + disease surveillance planned breeding + nutritional schedules + use of information technologies + formulation of legislation.

Apart from allopathic system of medicine, alternate system of medicine is also exploited in infectious disease control. Inter-personal communication and information folk and other traditional media as well as religious leaders bring behavioral changes with respect to the communicable diseases e.g. HIV and other sexually transmitted disease[1].

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Letter to the Editor

Establishing a referral system in Kashmir

Health care is provided to community at various levels i.e., primary secondary and tertiary. The provision of health at various levels is need-based.

Referral system should be sound in order to provide efficient health care to the community. Proper referrals will save the scarce resources and minimise overcrowding in teaching hospitals. However, the referral of patients from satellite health care centres to secondary or tertiary care institutes is very poor in Kashmir.

A study was conducted at a large teaching hospital in Kashmir (Sher-i-Kashmir Institute Of Medical Sciences.).

400 patients in out-patient department were put to a question for referral letter from peripheral/satellite care centre.

12(3%) patients had referral letter from other hospitals of the valley. 125(31 .3%) patients were referred from primary health centres or dispensary while 7 (1.8%) patients had referral letter from private clinics. 256 (64,0%) patients attended the out-patient department without any referral letter (Table 1).

Table 1 : Frequency of referrals

		Frequency	Percent	Cumulative Perecent
Valid	Hospital	12	3.0	3.0
	Non-referrals	256	64.0	67.0
	PHE/Disp.	125	31.3	98.0
	Private Clinics	7	1.8	100.0
Total		400	100	

The study reflects poorly on referral system between rural based and urban based health care systems.

What needs to be done

Urgent attention at policy planning level is required so that health professionals particularly in rural setting are made aware of their responsibilities, towards the importance of referral system.

The system should be two way, so as to coordinate efforts for better patient care results. Higher levels of care should provide feed back to the referring institution/doctor (Fig 1)

Proper filtering, as per need and protocols are to be maintained, so that one who needs special care may be directly referred to treating hospitals..

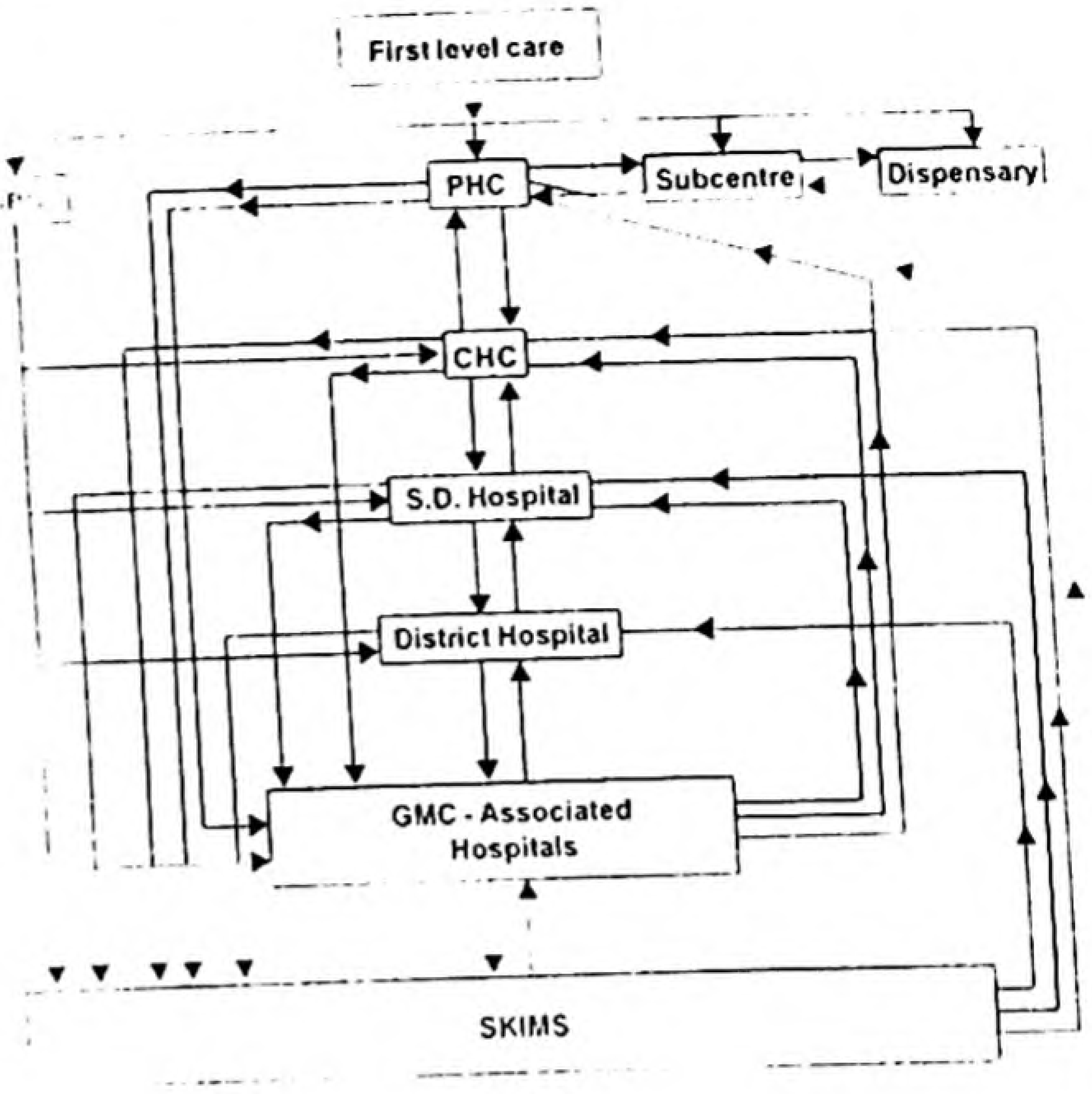

Fig. 1: Referral Highway

Key:

GP= General Practitioner, PHC= Primary Health Centre, CHC= Community Health Centre, SDH= Sub-district Hospital, SKIMS= Sher -i-Kashmir Insitute of Medical Sciences, GMC= Government Medical College

Regular review meeting should be held by top officials like Commissioner Secretary health and Medical education, Director SKIMS, Principal Medical College and Director Health Services to monitor the progress and efficacy of the referrals with a view to identify deficiencies and improving the system.

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Physician And Consumer Protection Act (CPA)

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The consumer protection act was passed in 1986[1].It is an act to provide for better protection of the interests of consumers and for that purpose to make provision for establishment of consumer councils and other authorities for the settlement of the consumers disputes and for matters connected therewith,

In a doctor _ patient relationship, the patient is entitled to services from the doctor in such a degree of professional skill & expertise as would be expected from such a medical man of similar qualifications and standard. In case the service availed is that from one who claims to be or is a qualified specialist, then the degree of skill required to be exercised is more. The patient is entitled to such medical attention in case of emergencies that would prevent loss of life or limb. The doctor must exercise the methods founded on scientific principles.

A physician should respond to the call of the patient. The nature of the disease and implications thereof should be explained to the patient or his near relations. In no case the patient is to be neglected. A physician cannot refuse to treat a patient on religious grounds.

As regards the medical service, it is noteworthy that in India there are several kinds of practices in vogue i.e. allopathy, homeopathy, ayurvedic, unani, acupuncture and acupressure, All the same people still believe in quacks and magic remedies. So, it is not only the medical professionals who ought to be careful, it is rather the patients who should be more vigilant, ask proper prescription and abide by the instructions of their doctor without concealing any information which is vital to the ailment being diagnosed and treated.

It is pertinent to mention that the number of cases being filed before the redressal agencies under the consumer protection act relating to the medical professional and series of medical nature are ever increasing. At the same time in some cases the hospitals and nursing homes have filed complaints. The national consumer disputes redressal commission, which is sitting at New Delhi, and the other state consumer disputes redressal commissions have delivered appreciable judgements on the basis of allegations made out in different cases in the light of provisions of the act. These bodies are required to decide disputes while observing the fundamental principles of natural justice and have power to grant certain specific reliefs provided under section 14 of the act. In appropriate cases, the compensation or damages are also awarded.. And it does not end here. There are penalties for non-compliance of the orders so passed. So. You see the system, though simple on one hand, is doubtlessly effective and authoritative.

Compensation to the aggrieved patients in consumer protection act is decided according to prescribed procedure. It is not all all inevitable that the court would grant a certain amount of money, because the same is claimed. The forums have to see first whether there was negligence or deficiency in service. Then it is to be confirmed that the aforesaid negligence resulted in the loss to the patient. The nature and degree of loss is also vital i.e. the gravity of the injury caused and the span of period it would subsist. Furthermore, what implications would arise in the day to day life of the patient which includes financial loss, mental agony and social embarrassment etc. The age of the person the source of income and the amount of income, further prospects in the career, the detriment caused due to the alleged disability, other diseases a patient is suffering from, history of chronic ailments and the concept of contributory negligence and extenuating circumstances which govern the formula to liquidate a sum of money as compensation. The expenses already incurred by the patient are also taken into account. In a nutshell, it depends on the peculiarity of facts and circumstances of each case and not by hard and fast rule.

In a recent pronouncement the Supreme Court has awarded rupees one lakh compensation to the minor child of a woman who died as a result of an abortion carried out by a homeopathic doctor. It was observed that the life is beyond price and it is not only a legal wrong, but a moral sin as well, to take away life illegally.

The duty of the physician is to examine the patient, record the findings, diagnose the disease, and prescribe investigations, if necessary and to explain the possible treatment and its natural outcome. The male doctors examining female patients especially rectally or vaginally, are duty bound to do so in presence of a female relative or nurse or receptionist or any member of the practising team.

The neurologist has a duty to explain the patient that anticonvulsant drugs have risks of inducing foetal abnormalities and can reduce the efficacy of oral contraceptive pills[2]. The physician must explain about invasive procedure which can be therapeutic or diagnostic. The risks of therapeutic procedures can be judges against the possible advantages. The risks of diagnostic procedures are not directly related with benefit. The patients must know about the possible findings of the procedure and subsequent probable treatment.

Professional negligence, rather medical negligence is that which, as the term suggests, relates to the medical profession and is the result of some irregular conduct on the part of any member of the profession or related services in discharge of professional duties[1].

Winfield has defined negligence as a tort which is the breech of a legal duty to take care which results in damage, undesired by the dependant to the plaintiff[4]. An act involving the above ingredients is a negligent act. Medical negligence means such negligence resulting from the failure on the part of the doctor to act in accordance with medical standards in vogue, which are being practiced by a ordinarily and reasonably competent man practicing the same art[5]. There may be so many instances in which a medical man may act in a highly negligent manner. For example, during the course of treatment, a patient suffers injury or dies due to grave lack of care and reasonable skill, it is negligence.

Similarly, commission of illegal acts beyond the scope of duty of the medical practitioner may hold him guilty of a negligent act[6]. In cases of abortion, recklessness can cause a lot of trouble to the doctor. Sometimes, anaesthesia may prolong and it becomes impossible to revive the patient. This is also negligence. According to charlesworth and percy on negligence a specialist is one from whom, in case of a contract, more skill can be demanded than from a general practitioner. Similarly, prescription of drugs without first examining the patient also tantamounts to negligence. An error of judgement can be excused and reasonable degree of care and skill is expected but if the person professes to be specialist in the field, then a highest degree of skill is mooted.

A professional charged with negligence can clear himself if he shows that he acted in accordance with general and approved practice[7]. It is not required in discharge of his duty of care that he should use highest degrees of skill, since each and every individual may never acquire the same. Even deviation from normal professional practice in peculiar and special circumstances is not necessarily evidence of negligence. As regards the standard of care required for the medical man it can be stated that a mistaken diagnosis is not necessarily a negligent diagnosis. A practitioner can only be held liable in this respect if the diagnosis is so palpably wrong as to prove negligence, that is to say if his mistake is of such a nature as to, imply an absence of reasonable skill and care on his part, regard being had to the ordinary level of skill in the profession[8].

CONCLUSION. :

In addition to the guidance given in the code of ethics, the certain other duties of a physician should also be remembered :-

To use the necessary skill, care, judgement and attention in the treatment of his patients.

He has full liberty to adopt any of the accepted theories of medicine or surgery in which he honestly believes. Also there is considerable scope for him in exercising his judgement and discretion, as medical science is not an exact science. He must remember that he owes a duty towards his patients, whether there is any contract with the patient or not.

As soon as a registered medical practitioner agrees to treat a patient, relationship is legally established, it neither guarantees a cure nor an assured improvement for the treatment given by him.

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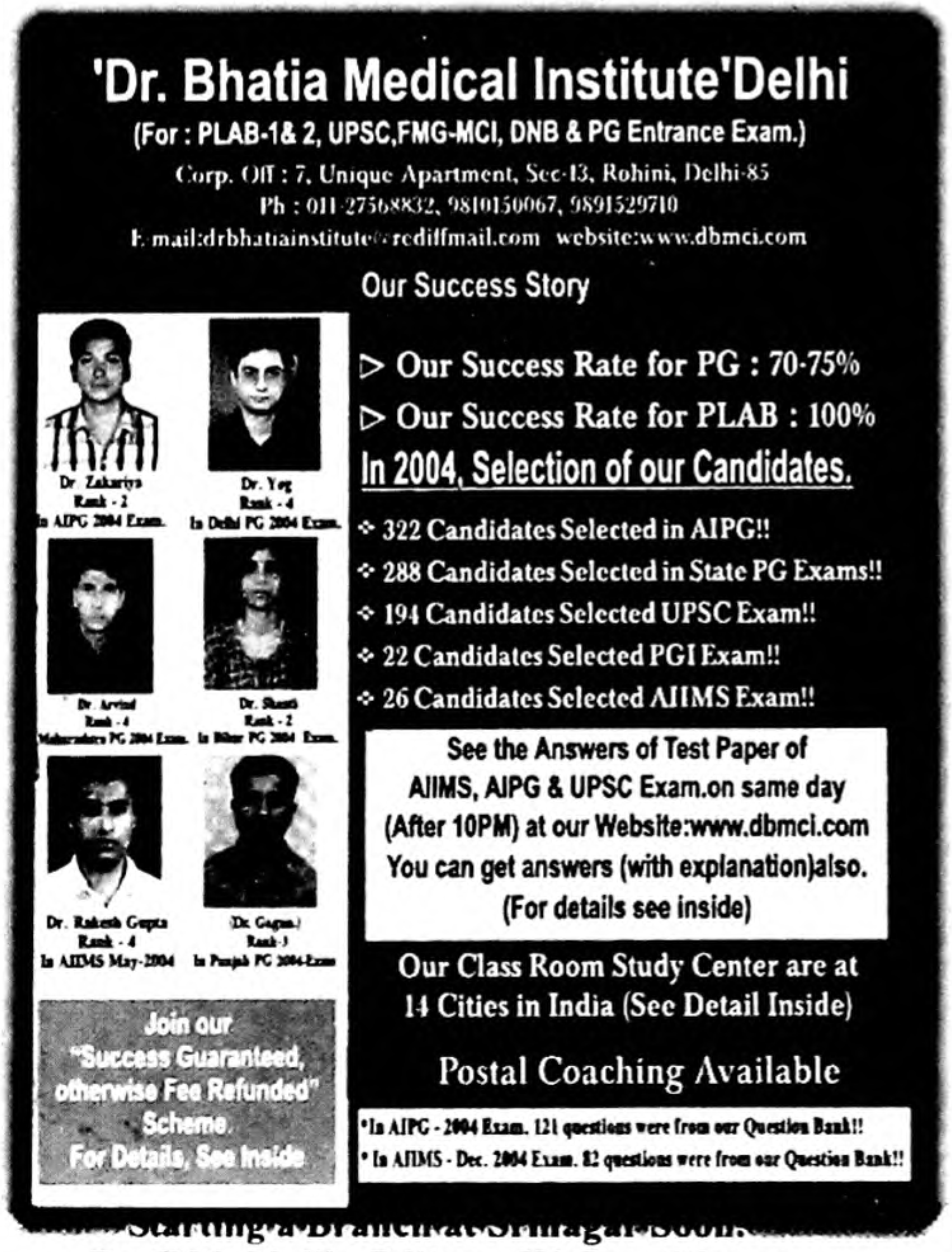

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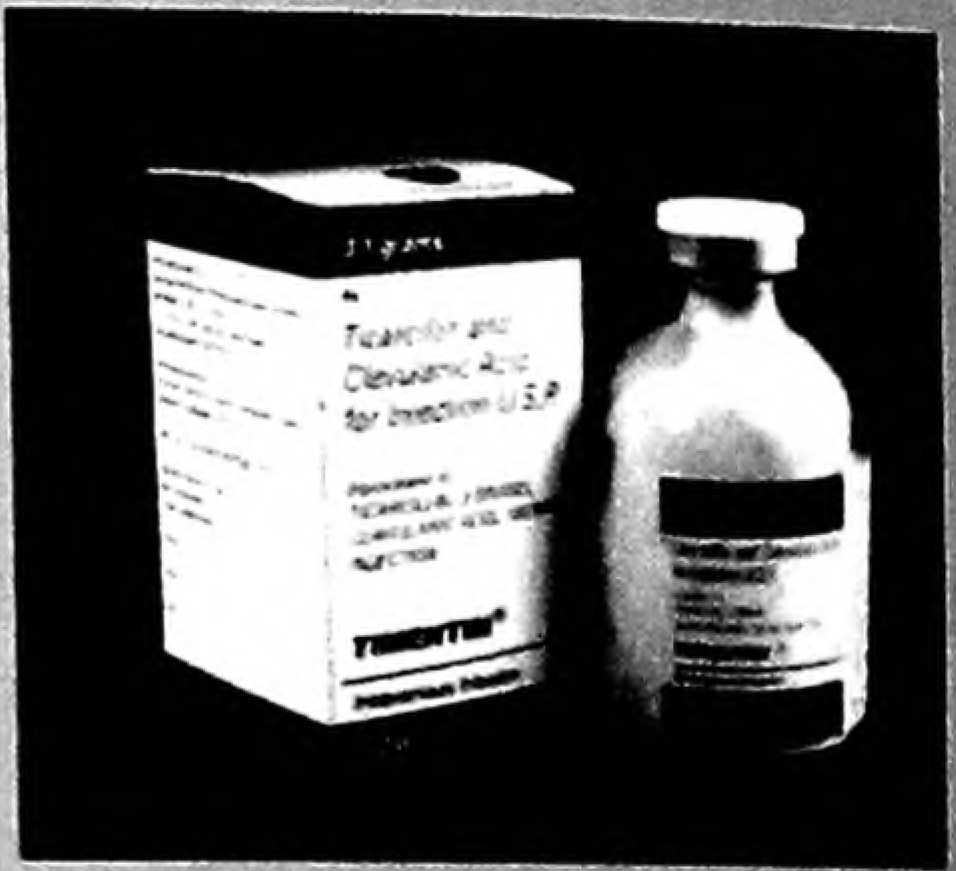

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Erratum:-Mini- Appendectomy (An experience of 100 cases) **JK-Practitioner 2005;12(1):11-13.** Page 11 Read author as Sanjay Kumar Bhasin instead of Sanjay Kumar Shasin.

*To speed up the process of REVIEW, manuscripts could be submitted on **zabbask2003@yahoo.co.in** with intimatation to zaffarak@hotmail.com

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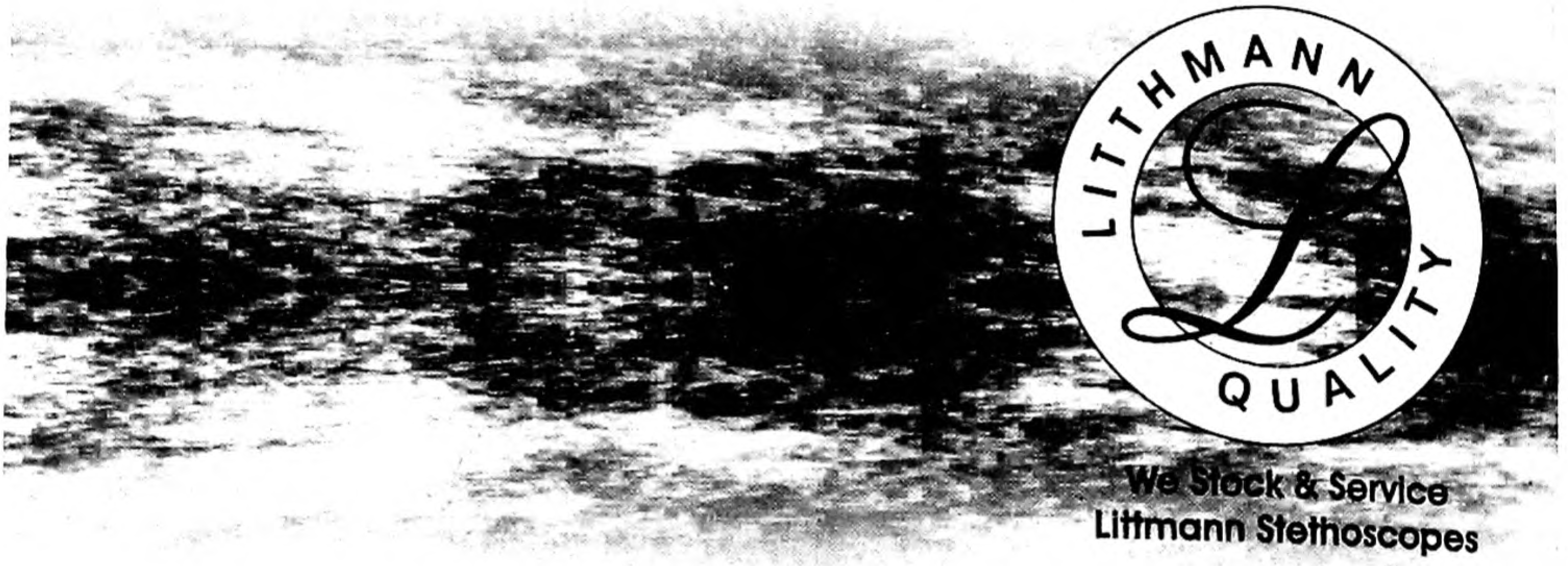

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Heamatopoietic growth factors: Past Present and Future

Aleem Jan. MD, R.K.Marwaha MD, FIAP, ,D.Bansal

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Ever since the initial description of invitro biology of CSF in late 1960 & early 1970's,there has been intense interest in unraveling the humoral mechanism involved in regulating hematopoesis.[1-3].

These factors were originally termed colony stimulating factors based on their ability to support the formation of colonies of blood cells by bone marrow cells plated in semisolid medium.[4-5] with the molecular cloning of the genes for many of these factors and their receptors during 1980 & 1990's,it became possible to study in detail the structure, function and biology of recombinant CSF[3].

In fact, progenitor cells differentiate under the influence of heamatopiotic growth factors.A number of heamatopioetic growth factors have been identified, purified and molecularly cloned.

With the turn of century, further research and refinements have completely revolutionized the status of heamatopiotic growth factors.

Herein is presented current status, bioavailability and consensus on their application guidelines in clinical practice.

Among the various available HPG factors EPO,GCSF & GMCSF have found favour in present day clinical practice.

(A). Erythropiotin:- Red cell production in humans is controlled by a Sialo-glycoprotein hormone ,erythroprotein that is produced by kidney in response to hypoxic stress and acts on bone marrow to selectively stimulate erythropoises.The gene has been cloned in 1985 and recombinant EP is now available. It is very effective potent agent, capable of alleviating the anemia of renal origin. Non renal applications of HUEPO (Recombinant Human erythropoietin) include

1.Anemia of prematurity,
2.JRA,
3.Myelodysplastic syndromes,
4.Malignancies,
5.Bone marrow transplantation,
6.Hamoglobinopathies,
7.HIV infection,

Dose:- 100-500 u /kg thrice a week is usually preferred.

Side Effects:- Hypertension, seizures, Thrombosis & flu-like symptoms

(b). Colony stimulating factors:- The CSF are a family of glycoprotein hormones that regulate the proliferation and maturation of heamatopiotic progenitor cells. In addition to their effect on heamatopeosis, CSF modulate the function of fully mature cells and therefore play an important role in regulating inflammatory response vital to host defense. Various CSF are G-CSF (Granulocyte colony stimulating factor, GM-CSF (Granulocyte-Macrophage colony stimulating factor), M-CSF Macrophage colony stimulating factor[2-6].

Potential Clinical use of CSF(G – CSF & GM CSF)

(a) **Bone marron failure or Damage**

1) Myelosuppression from chemo or radiotherapy
2) Accidental radiation exposure
3) Aplastic Anemia/Fanconi Anemia

Abbreviations *HGF :- Heamatopiotic growth factors, CSF :- Colony stimulating factors, EP :- Erythropiotien, PBP :- Peripheral blood progenitor cells, G-CSF :- Granulocyte colony stimulating factor, GM :- Granulocyle-Macrophage, MDS :- Myclodyplastic syndrome*

4) Acquired Neutropenia
5) Myelodyplastic disorders
6) Bone marrow transplantation
7) A megakaryocytic thrombocytopenia
8) Severe burn injury
9) Diamond Blackfan Anemia.

(b) **Heamatological malignancies**

- Acute Myeloid leukemia
- Myeloproliferative disorders
- Febrile Neutropenia
- Multiple Myeloma
- Chronic lymphocytic leukemia
- Hairy cell leukemia
- Lymphoma

(c) **Infectous diseases**

- HIV & AIDS
- Over whelming sepris
- Viral illness granulocytopenia
- Leprosy
- Listeriosis
- Histoplasmosis

(d) **Congenital disorders**

- Chronic granulomatous disease
- Cyclic neutropenia
- Congenital neutropenia
- Chronic idiopathic neutropenia
- Kostmann Disease
- Schwachman – Diamond syndrome
- Alloimmune & Auto Immune neutropenia

Others:- Solid Tumors
-osteopetrosis.

Dose:- 5-10 μg/kg body weight of GM-CSF or 250 μg/m 'D or 5μg/kg/d of G-CSF subcutaneously daily for 5-10 days Side effects could include GI upsets, bone pains, musculoskelatal effects, anaphylaxis, pulmonary leak syndrome, transient lenkopenia in first 30 minutes, flu like symptoms.

In order to arrive at a consensus regarding clinical applications of CSF , evidence based clinical practical guidelines have been laid by American society of clinical oncology, most recent of which are recommendatious of year 2000 (7,8) and the issue renewed by British group in British Journal of heamatology of year 2002''.Relevant summary of guidelines is hereby reproduced so as to facilitate decision making.

(a) Guidelines for Primary Prophylactic CSF administration

It is recommended that primary administration of CSF's be reserved for patients expected to experience levels of febrile neutropenia that are at least comparable to or greater than those seen in control patients in randomized trails i.e an expected incidence of ≥ 40 %. Thus for previously untreated patients receiving most chemotherapy regimens, primary administration of CSF cannot be recommended.

However in special circumstances, depending on unique features of clinical situation ,there will be instances when administration of CSF will be appropriate.

Guidelines for Secondary Prophylactic CSF administration

In the absence of clinical data, chemotherapy dose reduction should be considered after neutropenic fever or prolonged neutropenia after previous cycles of treatment. Presently not being favored.

Guidelines for CSF Therapy

(a) **Afebrile Patient**:-Not recommended in Afebrile neutropenia.
(b) **Febrile Patient**:- The use of CSF for high risk factors may be considered. These factors include profound absolute neutrophil count ANC<100/μl, uncontrolled primary disease, pneumonia, hypotension, multiorgan dysfunction and invasive fungal infections.

Guidelines for Use of CSF to increase Chemotherapy dose intensity:-

In absence of more trails demonstrating a favorable effect on overall survival, disease free survival, quality of life or toxicity, there is no justification at present for use of CSF to increase chemotherapy dose intensity or schedule or both, outside of a clinical trail. This application of CSF use remains domain of appropriately designed clinical investigations.

Guidelines for use of CSF as adjuncts to progenitor-cell Transplantation:-

CSF's are recommended to help mobilize PBPcs(Peripheral blood progenitor cells) Mobilised PBPcs, have largely replaced bone marrow derived cells for use in autologous transplantation. Side effects associated with mobilization and subsequent aphresis are usually limited and include constitutional symptoms and a decrease in platelets and other heamatopiotic elements. Dose of CSF and chemotherapeutic agent is the subject of ongoing investigation but a higher dose of 10 μg/kg/d of G-CSF may yield grater content of CD34 progenitor cells. Further investigation are necessary to assess potential risks, especially that of secondary haematological malignancy.

Guidelines for use of CSF in patients with AML,MDS,ALL:-

(a)**AML**:-CSF can be considered in a setting where benefits in terms of possible shortening of hospitalization out weigh the costs of CSF use. There seems to be more profound shortening of the duration of neutropenia after consolidation. Available evidence indicates that CSF can be recommended after completion of consolidation chemotherapy. Available evidence indicates that CSF can be recommended after completion of consolidation chemotherapy.

(b) **MDS**:-CSF can increase ANC in neutropenic patients with MDS syndrome. Data supporting the routine long term use of CSF in the patients are lacking. Intermittent administration of CSF may be considered in a subset of patients with severe neutropenia and recurrent infection.

(c) **ALL** :- The data are sufficient to recommend G-CSF administration begun after completion of first few days of chemotherapy, because it shortens duration of neutropenia. It could be together given with steroids/antimetabolite therapy.

(d) **Lenkemia in relapse** :- The available data neither approves nor negates use of CSF in patients with refractory or replaced ALL.

Guidelines for use of CSF in patients receiving concurrent chemotherapy & irradiation:-

CSF should be avoided in patients receiving concomitant chemotherapy and radiotherapy particularly involving mediastinum. In the absence of chemotherapy, in patients receiving radiation therapy involving large fields, therapeutic use of CSF may be considered if prolonged delays secondary to neutropenia are expected.

Guidelines for use of CSF in Pediatric Population:-

In the absence of conclusive Pediatric data, the guidelines recommended for adults are generally applicable to pediatric age group. Clinical research into use of these factors in support of chemotherapy and PBPC in Pediatric setting is gaining high priority.

Guidelines for CSF Dosing & Route of administration:-

G–CSF 5μg/kg/d
GM-CSF 250 μg/m^2/d
For PBPC :- 10μg/kg/d of G-CSF
Route:- Sub Cutaneous

Guidelines for initiation & duration of CSF administration:-

The optimal timing and duration is still under investigation. CSF given five days after infusion of PBPC re infusion is gaining favour on the basis of clinical data.

Special commentary on comparative clinical activity of G-CSF and GMCSF:-

Guidelines about equivalency of the available recombinant G-CSF and GM-CSF cannot be proposed because there have been no large scale prospective, comparative trails evaluating CSF efficacy. The Panel strongly encourages additional clinical investigation that shall guide clinical application of these biologically distinct molecules.

Application of G-CSF or GM-CSF in Pediatric Heam-oncology at present benefits patients of marrow transplant or those receiving it shortly after intense chemotherapy. ALL & NHL seem to benefit from Heamatopeotic growth factors. Role of HGF in solid tumors is not clear. An exciting development is the use of HGF to mobilize PBPC for autologous or allogenic transplantation. Most experts recommended the early administration of adjuvant G-CSF to immuno suppressive therapy in children with severe aplastic anemia to reduce early mortality by infectious complications. The use of G-CSF is also recommended in children with severe chronic neutropenia but these patients need to be monitored regularly for cytogenetic abnormalities.

Future studies in Padiatric patients are clearly warranted to define specific treatment group who can benefit from HPG factors and also dose and duration of therapy.

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Trends in the Occurrence of Certain Cyclooxygenase-2 Modifiable Diseases.

Jose VM MD, DM; Vishal Bansal MD; Promila Pandhi DM;

Abstract

Sanctioning of cyclooxygenase-2 selective inhibitors is probably the biggest controversy of the recent times. They can alter the occurrence of various diseases. Aim of the study was the assessment of changes in inpatient admission following gastro-intestinal problems, cardio-vascular events and outpatient diagnosis of new onset hypertension from 1997 to 2003. Tabulation of hospital reporting following the above diseases over 7 years at a tertiary health care health centre was done. Patients with ICD-10 coding K_{92} to $_{92\,2}$, K_{25} to $_{30}$, I_{20} to $_{25}$, I_{60} to $_{69}$ and new onset hypertension were enumerated and analyzed. Chi square test for trend, correlation analysis, linear regression and percentage change from expected value were determined by comparison with observed values in 2003. Significant positive correlation ($r=0.78$, $p=0.04$) was observed for new onset hypertension. There was a decreasing trend for cardio-vascular events ($p<0.001$) and increasing trend for new onset hypertension ($p<0.001$). There was 3.44% (63/1832) increase in hospital admission following cardio-vascular events, 6.69% (17/254) decrease in hospital admission following gastro-intestinal problems and 7.59% (42/553) increase in new onset hypertension in the year 2003 over the expected values obtained by regression analysis. From the data obtained we can conclude that COX-2 selective agents may have had some role in alteration in hospital

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Introduction

Sanctioning of cyclooxygenase-2 selective inhibitors by the FDA,[1] detection of discrepancies in the CLASS and VIGOR trials (which boosted the sales) of these agents,[2] and ultimate withdrawal from the market of some of these best selling agents following safety concern has been probably the biggest controversy of the recent times.[3-4] We did a retrospective analysis to determine the number of patients admitted to our tertiary care hospital with gastro-intestinal problems, cardio-vascular events and outpatient diagnosis of new onset hypertension, before the introduction till the withdrawal of the COX-2 selective agents to observe for obvious trends, since these agents can alter the occurrence of the above diseases.[5-8] This study is expected to help us to give some general interpretations of the impact of COX-2 selective agents among Indian population which has not been comprehensively evaluated.

Materials and Methods

The study was conducted in a tertiary care health centre. Charts of all the patients who were admitted to the hospital are coded according to international classification for diseases (ICD)-10 and stored in the medical records library.[9] From this database, the number of patients with specific ICD-10 coding were located and tabulated for years from 1997 till 2003. The authors themselves retrieved the data from the stored database and tabulated the results. Since a COX-2 selective agent was withdrawn during year 2004, which can have opposite attitude to the prescription tendency before and after the withdrawal, data of 2004 was not included, expecting biased results.

Included under various headings were the following diseases. Gastro-intestinal problems included $K_{92\,0}$ (Hematemesis), $K_{92\,1}$ (Malena), $K_{92\,2}$ (Gastro-intestinal haemorrhage-unspecified), K^{25} (Gastric ulcer), K^{26} (Duodenal ulcer), K_{27} (Peptic ulcer-site unspecified), K_{28} (Gastro-jejunal ulcer), K^{29} (Gastritis and Duodenitis) and K_{30} (Dyspepsia). Cardio-vascular events included ischemic heart diseases and cerebro-vascular diseases. Ischemic heart diseases included I_{20} (Angina pectoris), I_{21} (Acute myocardial infarction), I_{22} (Subsequent myocardial infarction), I_{23} (Certain current complications following myocardial infarction), I_{24} (Other acute ischemic heart diseases) and I_{25} (Chronic ischemic heart diseases). Cerebro-vascular diseases included I_{60} (Sub-arachnoid haemorrhage), I_{61} (Intra-cerebral

Key words: Cyclooxygenase-2, problems, hypertension, cardio-vascular events, trends

Table 1. Observed number of cases over the 7 years seen in the hospital and analysis.

	1997	1998	1999	2000	2001	2002	2003	x2 p value*	r† (p value)	Runs test	Expected‡	% change§
Gastrointestinal problems	266	275	259	237	291	268	237	0.43	-0.27(0.56)	0.80	254	?6.69
Cardio-vascular events	2079	2244	2222	2304	1836	1726	1895	<0.001	-0.67(0.10)	0.54	1832	?3.44
Newly detected hypertension	407	460	515	436	464	520	595	<0.001	0.78(0.04)	0.54	553	?7.59

*P value for chi square test for trend. †Correlation test. ‡Expected values for 2003 by regression analysis. §Percentage change observed compared with respect to 2003 expected values.

haemorrhage). I_{62} (Other non-traumatic intracranial haemorrhage). I_{63} (Cerebral infarction). I_{64} (Stroke, not specified as haemorrhage or infarction). I_{65} (Occlusion and stenosis of pre-cerebral arteries, not resulting in cerebral infarction). I_{66} (Occlusion and stenosis of cerebral arteries, not resulting in cerebral infarction), I_{67} (Other cerebro-vascular diseases) and I_{68} (Cerebro-vascular disorders in disease classified elsewhere) and I_{69} (Squeal of cerebro-vascular disease). All newly diagnosed hypertension for which new out-patient charts were made in the outpatients department were considered as new onset hypertension.

Chi square test for trend was performed to determine the trend over the years from 1997 to 2003. This is expected to provide an idea whether there is a regular significant change over years for the event. Relation between the year and number of cases was detected by correlation analysis. This gives an idea whether there is any increase or decrease in the occurrence of the event over years with the magnitude of relation between the event number and years. Expected value for 2003 was found out by linear regression after confirming linearity by Runs test. Runs test confirms linearity of the values over the years there by making applicability of extrapolation by regression analysis appropriate. Finally, percentage variation from expected value was determined by comparison with the actual values observed in 2003.

Results

There was a significant decreasing trend observed over the years for cardio-vascular events (p=<0.001) and increasing trend for the diagnosis of new onset hypertension (p=<0.001). Gastro-intestinal problems did not show a linear trend over the years (p=0.43). Significant positive correlation was observed for diagnosis of new onset hypertension (r=0.78, p=0.04). There was a non-significant negative correlation observed for cardio-vascular events (r=-0.67, p=0.10) and gastro-intestinal events (r=-0.27, p=0.56). There was increase in cardio-vascular events (?3.44%) and new onset hypertension (?7.59%) and decrease in gastro-intestinal problems (?6.69%) in the year 2003 over the expected values obtained by regression analysis (Table 1.).

Discussion

Gastro-intestinal problems showed no linear trend but showed a non-significant negative correlation over the years and a 6.69% decrease compared to the expected. COX-2 selective agents have better gastro-intestinal tolerability than non-selective non-steroidal anti-inflammatory drugs and acid related complications are therefore is expected to be less.[4] Cardio-vascular events showed a significant negative linear trend and non-significant negative correlation. Availability of newer agents, better use of older agents, improvement in detection and treatment of hypertension and increased health awareness probably has lead to decrease in admissions. Decrease in the incidence of cardiovascular mortality and stroke has been observed in certain other countries also.[10] However, there was a 3.44% increase over the expected number of cardio-vascular events. Rofecoxib have been shown to increase relative risk of serious cardiovascular events which was the basis for its withdrawal.[1] There was a significant positive linear trend for new onset hypertension and a significant positive correlation and there was a 7.59% increase over the expected number. COX-2 selective agents have been shown to cause oedema and increase in blood pressure.[7,11]

Changes in inpatient admission following gastro-intestinal problems, cardio-vascular events and outpatient diagnosis of new onset hypertension from 1997 to 2003 showed expected results in the study. Lack of significant linear trend or correlation over years, for certain conditions studied, can be due to various reasons. Broad inclusion of ICD-10 criteria could have probably diluted the observations. However we felt broad inclusion criteria more suitable since multiple people involvement in diagnosis, coding and tabulation makes coding vulnerable to mistakes which could seriously bias the results. Abrupt change in the occurrence of various diseases evaluated and insufficient time for observable events to manifest can

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A brief Clinical Study and management of Lung Cysts In Kashmir Valley

Nazir Ahmad Wani MS, Hamid MB, Maajid Hassan Bsc (B.T) , Ghulam Hasan Bhat MS, Ashiq Hussain MS, Mch (CVTS)

Abstract :-

The present study was performed on 100 patients admitted in various surgical and medical wards of SMHS hospital and other associated hospital namely Chest disease and Pediatric hospital from 1998 onwards for a period of more than 2 years. Patients with lung cysts affected almost all age groups with a male female ratio of 2.2; 1.8. The hydatid cyst was the commonest cyst of the lung (90 present). 4 percent of patients were asymptomatic, diagnosed incidentally . 80 percent presented with cough and 30 percent with haemoptysis. The most common complication was pneumonitis (24%) Right lung involvement was in 70 percent patients with single cyst. None had bilateral Lung cyst. 80% of patients needed surgery and all of these had hydatid cyst. 9 percent patients with hydatid cyst lung were treated with albendazole Most of the other types of cysts responded to non-surgical treatment. In patients treated with surgery, enucleation of cyst, closure of bronchial openings and capittonage was mainstay of treatment. Postoperative complications were minimal and managed conservatively with no mortality in this study.

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Introduction :-

Lung cysts form an important cause of morbidity and mortality in patients of almost all age groups. Lung cysts are of many types namely epithelial cysts, emphysematous cysts, parasitic and pseudocysts Epithelial cysts are developmental in origin, lined by respiratory epithelium and may have traces of cartilage, bone, muscle or glands in their wall Emphysematous cysts are result of degenerative changes in the normal alveolar framework of the lung and have no epithelial lining. Parasitic cysts are caused by various parasite infestations of lung most common of which is hydatid cyst caused by echinococcus parasite. Paragonimiasis also causes lung cysts. Pseudocysts have no epithelial or endothelial lining. Certain inflammatory conditions of the lung result in cavity formation. The cavities when chronic are often lined by fibrous tissue. Various infectious conditions causing lung cysts are bacterial e.g., staphylococcal, tubercular, lung abscess etc., fungal infections e.g; Aspergillosis, blastomyces etc

We report our experience with these lung cysts in the CVTS division of the Deptt. Of Surgery Govt. Medical College Srinagar from 1998 onwards on 100 patients.

Material and Methods:-

The study was conducted on 100 patients of lung cysts admitted in various surgical and medical wards of SMHS Hospital and referred patients from chest disease and paediatric hospital .The detailed history and examination was done and diagnosis was established by various investigations. The radiograph of the chest and CT scan was the main investigation done in almost all patients. Specialized tests like ultrasonography, fiberoptic bronchoscopy, lung function tests and ELISA for hydatid and other infections was done in a selective group of patients. After diagnosis, treatment was planned . Those patients who were to undergo exploratory thoracotomy were preoperatively given chest physiotherapy, and build up for the surgery . Albendazole was given before surgery for 3 weeks and continued postoperatively.

In most patients posterolateral thoracotomy was done on the affected side . The whole lung was examined and cyst confirmed .In hydatid cyst, after removal of cysts, the cavity was closed after sealing the bronchial openings with silk . The pleural cavity was drained by portex tubes in all patients and connected to underwater seal. Incision was closed in layers.

Postoperatively patients were given antibiotic combinations

***Key words** :- Lung cyst, hydatid, pseudocyst, enucleation, capittonage.*

(Cephalosprins e.g, cefotaxime or ceftriaxone 50 – 100 mg / kg / day and Gentamycin 3 mg / kg / day). Oxygen inhalation for first 24 hours was optional. The chest tube drains were removed after complete lung expansion and absence of any drainage (usually 3- or 4- day) . Daily chest physiotherapy and breathing exercises were given and early ambulation encouraged. Non- narcotic analgesics were used for pain relief. Patients were usually discharged on 10th postoperative day.

Results

The incidence of lung cysts was maximum in 3- and 4- decade (20% and 32% respectively), the youngest patients was 4 ½ years while the oldest was 68 years of age. The hydatid cyst was the most frequent lung cyst in our study

(Table I)

Cyst type	No.of pts.	Percentage
Hydatid cyst	90	90
Congenital	04	04
Emphysematous	02	02
Tubercular pseudocyst	02	02
Giant pneumatocele	02	02
	100	100

16 patients in our study had associated extrapulmonary cysts .These included 12 with hydatid cysts in liver,2 retroperitoneal cysts, one with mesenteric cyst and other with cyst in spleen.

Type of surgical procedure adopted in operated cases:-

Type of Procedure	No. of pts.	Percentage
● Thoracotomy with enucleation of cyst and capittonage and under water seal drainage	70	70
● Thoracotony with decortication, removal of membrane, capittonage and water seal Drainage	07	07
● Thoracotomy with removal of daughter Cysts,capittonage and water seal Drainage	02	02
● Thoracotomy with obectomy and underwater seal Drainage	01	01

As shown above enueleation of cyst with capittonage was done in 70 patients. In seven patients decortication was done followed by membrane removal and capittonage, two patients had daughter cysts formation which were removed and capittonage of the cavity was done . One of the patients needed lobectomy as the lung lobe affected by hydatid was completely destroyed.

Postoperative Complications

Complications	No. of pts.	%age
Woundinfection	4	4
Air leak	2	2
Pleural effusion	3	3
Chest wall hydatidosis	01	01

Wound infection was the common complication (4%) it was managed with antibiotics and repeated antiseptic dressings. Persistent air leak occurred in 2 patients which closed with conservative treatment 3 patients developed pleural effusion which was aspirated and managed conservatively . Late occurrence of chest wall hydatidosis occurred in one patient, which needed surgical excision. The mortality was not recorded in our patients directly related to the lung cyst.

DISCUSSION

Lung cysts can present with variable symptoms and signs. All patients except two with lung cysts presented with symptoms like cough (80%), haemoptysis (30%), fever (20%), Chest pain (40%), breathlessness 30% and urticaria (61%) Clinical sings in these patients were absent in 50 precent of patients. The most common clinical signs included crepitations, wheeze, signs of pleural effusion and empyema in some patients. Some cysts can be asymptomatic as in 4 % patients in this study. Ayuso et.al[1] reported 14 percent lung cysts as asymptomatic. These cysts are silent unless complications have overtaken the cysts[2]. Dry and recurrent cough was the commonest symptom (80 percent). Muthuselvum and Ayuso reported 60% patients with cough. Hemoptysis was present in 30 percent in this series. Balikian[4] reported hemoptysis in 60 percent of patients. Fever was present in 20 percent of patients . It was common in patients who had associated pneumonitis or pleural effusion with the cyst. Barrett and Thomas[3] reported that haemoptysis is probably due to abnormally large anastamosis between the bronchial arterial radicals around the cyst. Chest pain also occurred in patients who had complicated cysts (infected or ruptured).It occurred in 40 percent of patients .

The physical findings in lung cyst were scarce. Crepitations and wheeze was present in 20 percent of patients. Extrapulmonary involvement was present in 16% patients . This involvement was present in 11.27% of Barrett and Thomas series[2] and in 30 % of Balikian study[4] Pneumontis was the most common complication occurring in 22 % of patients while pleural effusion / empyema occurred in 10 percent and pneumothorax in 2 percent of patients Vonsiner[5] described pleural complications of hydatid cyst. Hydropneumothorax occurred in 4.26 percent of cases while 1.42 percent of cases had tension pneumothorax.

Surgery was needed in 80 percent of patients in this series. All of these patients had hydatid cysts in the lungs . 18 patients were treated non-surgically by drugs, breathing exercise , chest physiotherapy and regular follow up. One patient expectorated the hydatid membrane which was ruptured on bronchoscopy. Lee F Rogers[6] advised surgery in all cases of bronchogenic cysts upon discovery. Muthuselvum[1] subjected all hydatid patients to surgery.

In all patients conservative surgical procedures were employed. Barrett and Thomas[2] enucleated endocyst and obliterated cavity. Burgos[7], did cystectomy in 312 out of 508 procedures for hydatid cysts of lungs. Salih ok[8], observed that lung preserving surgery is treatment of choice in hydatid lung in his study of 405 patients. We conclude that conservative procedure (enucleation with capittonage)

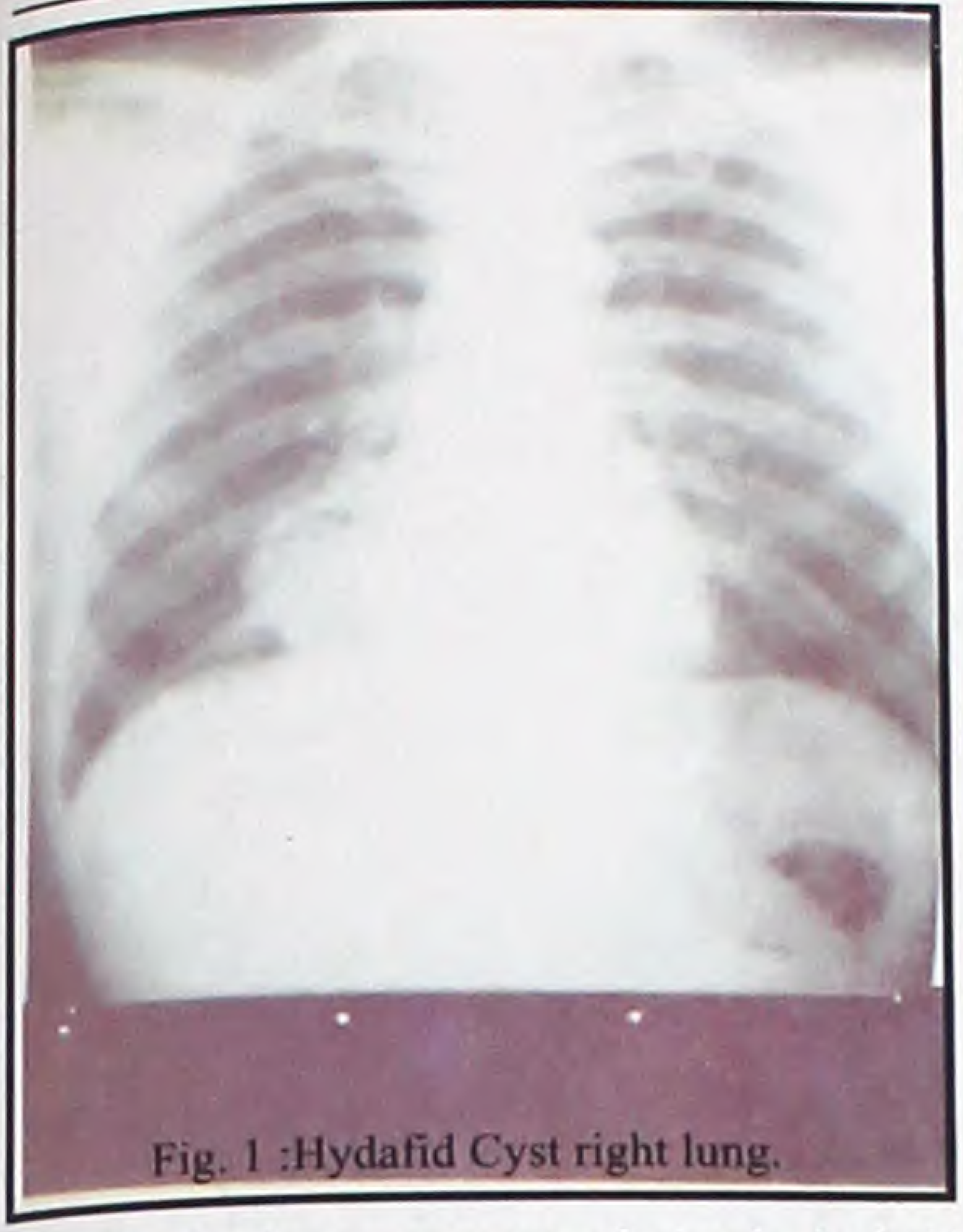

Fig. 1 :Hydafid Cyst right lung.

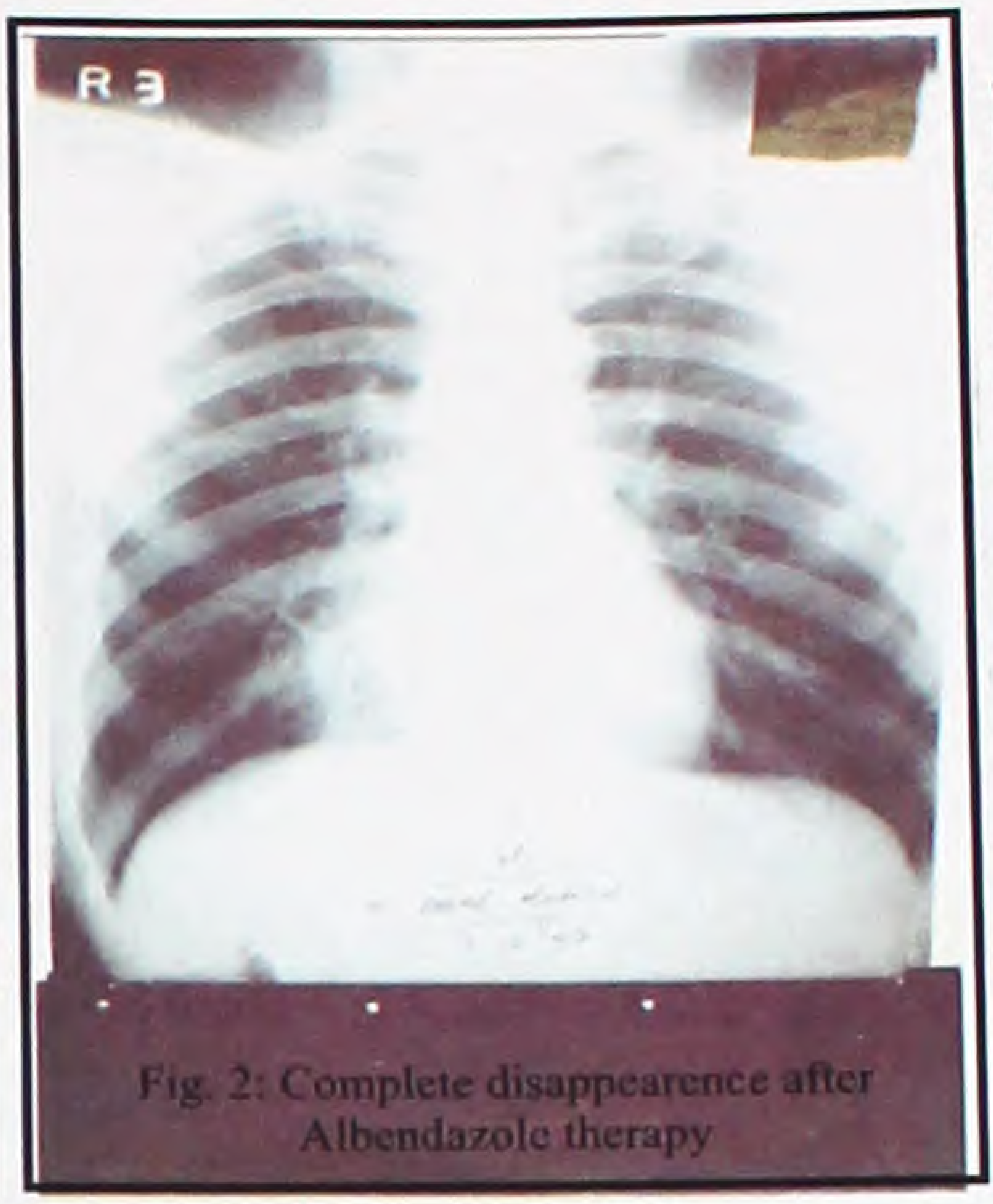

Fig. 2: Complete disappearence after Albendazole therapy

remains the best treatment of simple hydatid cysts.

Out of 19 patients who were treated non-surgically, 9 percent were given 3-4 course of Albendazole (400 mg BD) each course lasting for 4 weeks. The cyst disappeared in these patients and had no recurrence. Lung cysts other than hydatid were treated non-surgically. 2 patients with tubercular pseudocysts were completely cured with antitubercular therapy. 4 patients with congenital lung cysts, 2 had super imposed infection were given antibiotics and chest physiotherapy. 2 patients with emphysematous cysts had chronic obstructive lung disease associated. These patients recovered with bronchodilators and prolonged course of antibiotics. The cysts regressed markedly with this therapy. Giant pneumatococle associated with pneumonia disappeared when pneumonia was treated.

Morris [9], presented a series of 4 patients in which albendazole in dose of 10 mg/ kg/day was administered . There was radio graphic evidence of cyst regression in 3 of these patients.

Postoperative complication occurred in 8 patients. Wound infection was the most common complication in 4 patients. KOKS[10] described reversible cyst disease associated with pulmonary tuberculosis. Chest wall hydatidosis occurred in one patient after one year of lung hydatid surgery. This patient needed surgical excision and albendazole therapy. Muthulselvum[3] had postoperative complication as pyopneumo thorax in 2.86 percent and anaphylactic reaction in 2.86% of cases. Cetin[7] desribed postoperative complication in 5 percent of cases. Luis Burgos[7], reported bronchopleural fistula as most common complication (4.03%). Salih OK[8] reported postoperative complication in 5.2 percent of cases .

Summary and Conclusion

Lung cysts are quite prevalent in Kashmiri population affecting all age groups and both sexes. 4 percent patients were incidentally diagnosed as they were asymptomatic. Cough and haemoptysis were common symptoms. Extrapulmonary involvement was in 16 percent and liver was the commonest extrapulmonary organ involved. 80 percent patients needed surgery and all of them had hydatid cyst. 9 patients were treated completely with albendazole .Other types of lung cysts were treated conservatively. Postoperative complications were minimal and were treated conservatively except one patient of hydatid cyst chest wall which needed surgery. We did not record any mortality related directly to the lung cyst in our study .

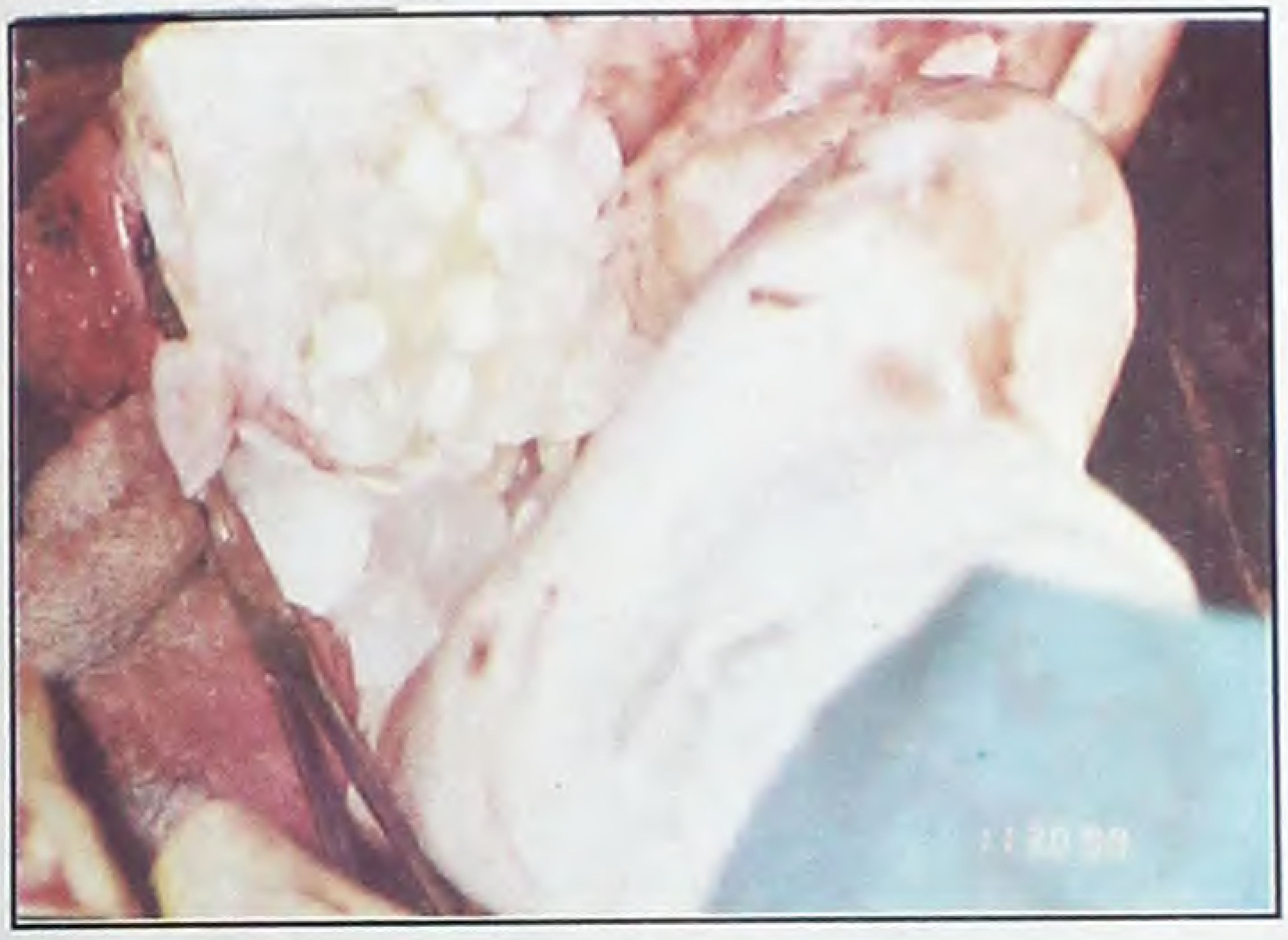

Fig 3 :- Multiple daughter hydatid

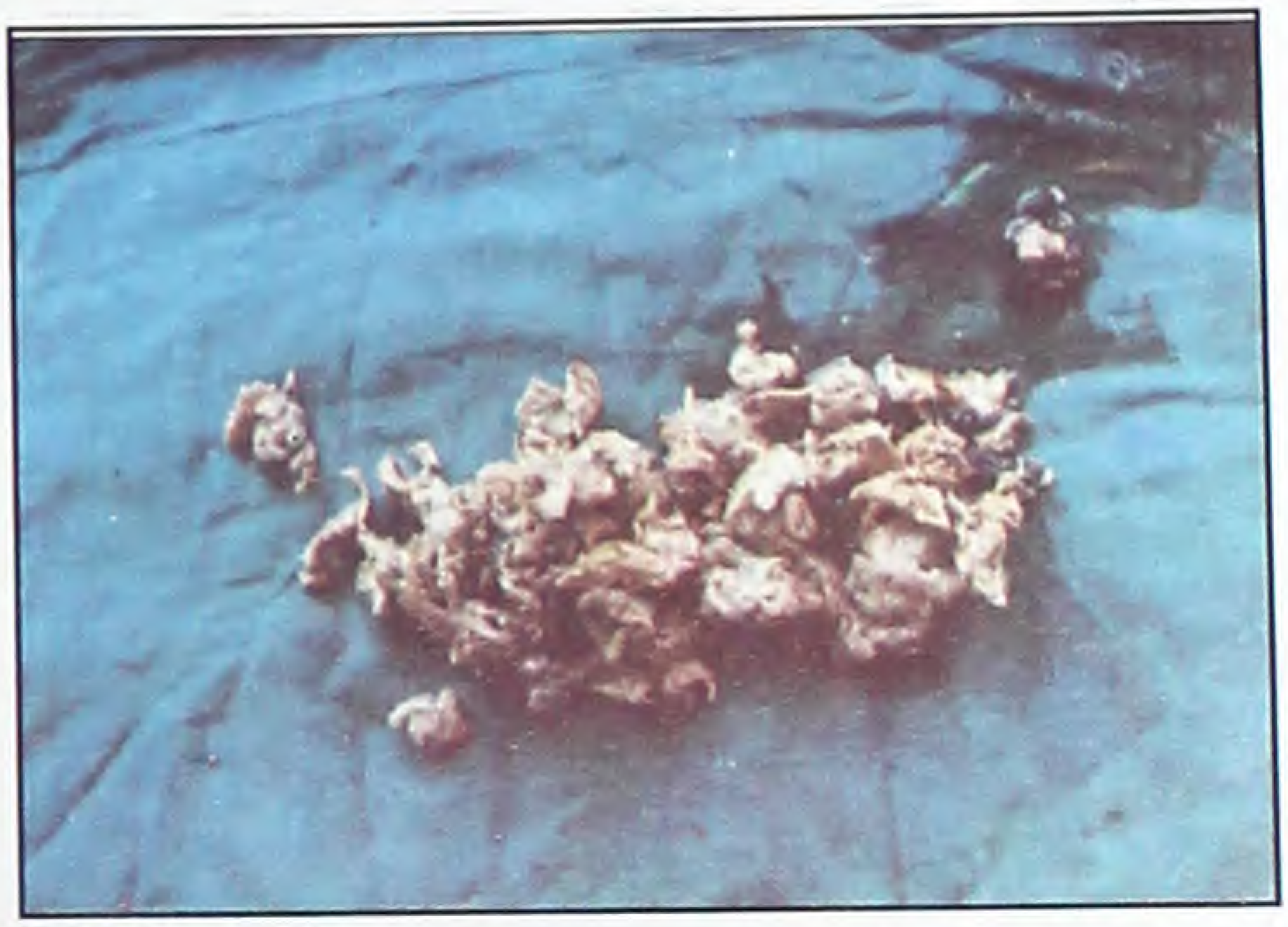

Fig 4 :- Fragments of laminated membrane cysts on Thoracotomy expectorated by patient

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cancer in Kashmir valley a retrospective histopathologic evaluation of cancer of oesophagus and stomach over a years period was undertaken to note the pattern and study change in the pattern.

Table I.

Time Interval	Total Biopsies	Total malignancies	Total Gastroi maligna
1984-1988	16516	2456 (14.87% *)	861 (35.05%
1989-1993	11571	1816 (15.69% *)	978 (53.85%
1994-1998	14825	1620 (10.92% *)	720 (44.44%

* of total biopsies.
· of total malignancies.
^ of total GI malignancies.

Material and Methods:-

The present study was carried out in t department of pathology Govt. Medical College, Srinag The study material included all the relevant clinical a histopathological records of all the resected specimens a endoscopic biopsies of histologically confirmed cases cancers of oesophagus and stomach diagnosed in t department of pathology from Ist Jan. 1984 to 31· Dec. 19

The study period was divided into three five ye intervals:

Period I : From Jan. 1984 to Dec. 1988.
Period II : From Jan. 1989 to Dec. 1993.
Period III: From Jan. 1994 to Dec. 1998.

The slides of all the confirmed cases of t malignancies of oesophagogastric region were review and wherever the need arose fresh sections were cut from t wax-blocks. Special stains like PAS Alcian Blue a Mucicarmine were used wherever applicable.

The analysis of the tumours of t oesophagogastric region was done according to following subsite allocations.

1. Upper Oesophagus.
2. Middle Oesophagus.
3. Lower Oesophagus /Oesophagogastric junction
4. Cardia.
5. Body.
6. Pylorus.

There were many cases where the subsite was specified they were grouped as:

7. Oesophagus – NS (Subsite not specified)
8. Stomach – NS (Subsite not specified)

The oesophagus was divided into approxim thirds according to the criteria of National Cancer Instit SEER 6 programme with distances measured from the m incisors as follows:

1. Upper Oesophagus from 15 cm to 22 cms.
2. middle Oesophagus from 23 cms to 31 cms.
3. Lower Oesophagus from 32 cms to 40 cms.

It was difficult to separate the tumours oesophagogastric junction from those involving the lo end of oesophagus. That is why these were groped togetl

38)

Percentage	M:F Ratio
17.03	2.7:1
15.85	3.86:1
5.03	33:1
14.5	3.45:1
32.44	1.57:1
10.51	1.08:1
1.77	5:1
2.81	2.1:1

93)

Percentage	M:F Ratio
22.39	2.30:1
16.40	4.47:1
9.37	7:1
14.06	5:1
25.91	1.28:1
7.94	0.96:1
1.43	4.5:1
2.21	0.88:1

998)

Percentage	M:F Ratio
27.09	1.89:1
19.10	3.66:1
2.14	2.6:1
24.36	5.94:1
21.44	0.96:1
5.84	0.87:1
x	x
x	x

inferred that while the percentage of tumours at pylorus and body has increased the percentage of tumours at GE junction and lower end of oesophagus has increased more dramatically in (1994-1998) possibly pointing towards some additional aetiological factor which has lately been introduced.

In our study male to female ratio was consistently in favour of males in all the three time intervals for the carcinoma of stomach and GE junction but for the oesophagus (middle & upper) there was a shift in favour of females. It remains to be seen as to how the trend shifts with time. Allum (1990) analyzing the tumours of oesophagus and stomach from 1962 to 1981 found and increase in the sex ratio in favour of males for oesophagus but the overall sex ratio for omach had very little change over time. Other authors und no significant difference in male and female ratio hile analyzing different periods.

Other parameters like age did not show a gnificant change in the pattern, (i.e.,) cancers were ommon in the age group 50-59, 60-69 in all the three time tervals and did not occur in the younger age group as has een observed in some studies, but other studies also report astric cancer to be common in the older age group.

The commonest gross tumour type was an filtrative lesion for all the sub-sites in all the three time tervals. At GE junction the commonest type of cancer was filtrative tumour.

The tumours were divided into well, moderately d poorly differentiated types. Poorly differentiated types owed an increasing trend when the three time intervals ere compared both for squamous and adenocarcinomas at l the sub-sites.

Golematis comparing the two different time tervals found no statistically significant difference in ifferentiation among the various sites for gastric cancer atients in the two groups belonging to different time tervals. Castellanos studying gastric cancer over two time eriods found an increase in poorly differentiated tumour types at cardia with decrease in antrum which showed an increase in well differentiated types and moderately differentiated type. In our study the percentage of poorly differentiated tumours (adenocarcinomas) was less i.e., 22%, 31% and 28% respectively for three time intervals in comparison to well differentiated and moderately differentiated types.

In our study there were very few lymphomas and other tumour types i.e., carcinoid probably reflecting a resistance to the tumour or else a decreased awareness in absence of immunohistochemistry.

Thus in conclusion oesophagogastric cancer forms a large bulk of tumours reported in Kashmir. The said cancer is changing in its pattern especially when evaluated for sub-site in different time periods. The cancer of lower end of oesophagus and gastrooesophageal junction is showing a change in pattern and an increase in frequency.

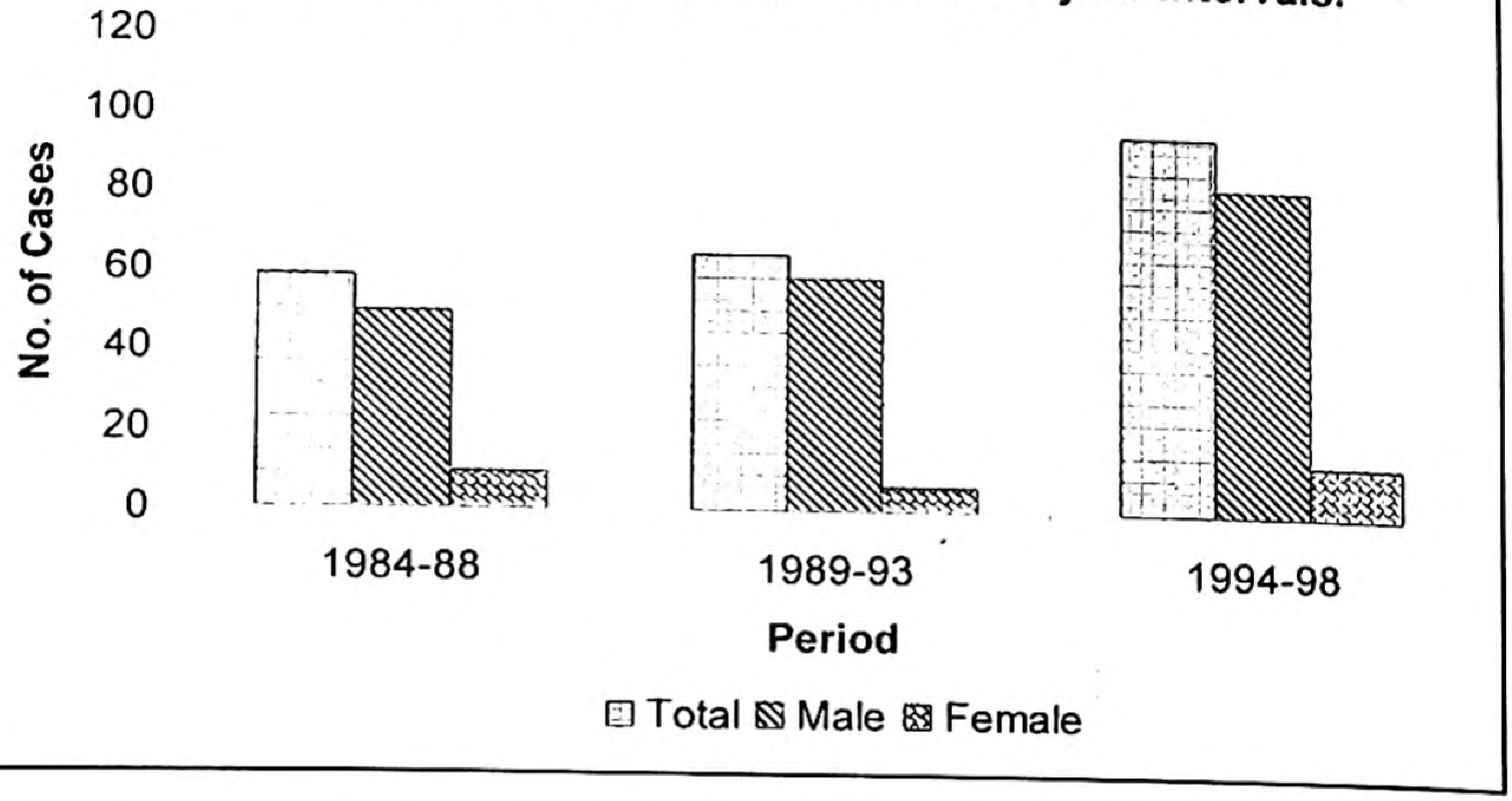

Figure I Bar Chart Showing Adenocarcinoma at GE Junction/ Lower End of Oesophagus at three 5 year intervals.

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Comparative evaluation of pulmonary function tests in laparoscopic and open cholecystectomy

Zahoor Ahmad Shah, Altaf Sultan Puri,Basharat Ahad, Iqbal Saleem Mir

Abstract :-

This prospective study was conducted in the Department of Anaesthesiology, Sher-i-Kashmir Institute of Medical Sciences, Srinagar from 1997 to 2000 on 50 female patients (ASA I & II), in the age group of 25 to 50 years, weighing between 40 to 60 kgs and height between 150 to 165cms. The patients were divided into two equal groups. Group A - laparoscopic cholecystectomy (LPC) and group B - open cholecystectomy (OC).

Pulmonary function test viz., vital capacity (VC), forced vital capacity (FVC), forced expiratory volume in first second (FEV1), FEV1/FVC and peak expiratory flow rate (PEFR) were measured preoperatively and at 24 hour and 48 hour in the postoperative period. The preoperative and postoperative values were compared within and in between the groups. In group A, the decrease in VC at 24 hour and 48 hour postoperatively was 24.74% and 16.03% respectively, while as in group B the decrease was 45.10% and 34.27% respectively. The decrease in FVC in group A at 24 hour and 48 hour postoperatively was 26.52% and 18% respectively, while as the decrease in group B was 46.37% and 35.5% respectively. In group A, the decrease in FEV1 at 24 hour and 48 hour postoperatively was 22.32% and 13.02% respectively, while as in group B, the decrease was 43.05% and 31.01% respectively. There was a significant increase ($p < 0.001$) in FEV1/FVC in both the groups postoperatively, suggesting a restrictive pattern of pulmonary impairment. PEFR after LPC significantly exceeded that after OC at 24 hour ($p<0.05$), while as the increase in PFR at 48 hour in group A was insignificant ($p<0.70$).

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INTRODUCTION

The first open cholecystectomy was performed by John Stough Bobbs in Indianapolis on June 15, 1867[1], and the first laparoscopic cholecystectomy was performed in Lyon by Phillipe Mouret in 1987[2].

Although gallstones managed through a right upper quadrant incision has proved to be safe and efficient[2], most patients experience significant postoperative impairment of pulmonary function, pain discomfort, ileus, and require prolonged convalescence. The major source of complication in open cholecystectomy is abdominal incision[2]. Upper abdominal procedures, including open cholecystectomy, produce significant impairment of pulmonary, mechanics independent of the effect of general anesthesia. Vital capacity (VC), which is critical for effective coughing, is reduced in the hours after surgery by as much as 40% - 50% of pre-operative values. Functional residual capacity (FRC) is reduced to 70% - 80% of pre-operative values [3]. Gradual restoration of lung function begins on the second or third post-operative day. The site of the surgical, incision and transaction of abdominal muscles has been demonstrated to have a major impact on depression of pulmonary function after cholecystectomy[4,5]. The reduction in functional residual capacity (FRC) and vital capacity (VC) after abdominal surgery are primarily due to incision pain and reflex diaphragmatic dysfunction[6].

Laparoscopic cholecystectomy combines the benefits of completely removing the gall bladder, with additional benefits of reduced hospital stay, rapid return to normal activities, less pain and less post-operative ileus compared to open cholecystectomy [7-9].

The aim of this study was to compare the changes in pulmonary function upto 48 hours in patients undergoing either laparoscopic cholecystectomy or open cholecystectomy via subcostal incision.

MATERIALS AND METHODS

Fifty healthy female patients (ASA physical status I and II), in the age group of 25-50 years, height between 150-165 cm, weighing between 40-60 Kgs scheduled for elective cholecystectomy were selected for the study.

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Key words: *Cholecystechomy, Laparosopic, pulmonary function tests, restrictive pattern.*

Patient with previous history of thoracic or abdominal surgery, chronic obstructive pulmonary disease, obesity (BMI. > 29) and any deformity of thoracic cage were excluded from the study.

Patients were randomly divided into two groups of 25 patients each

Group A - laparoscopic cholecystectomy group.
Group B - open cholecystectomy group.

Patients were taught the technique of spirometry and pre-operative pulmonary function studies including vital capacity (VC), forced vital capacity (FVC), forced expiratory volume in first second (FEV1), FEV1/FVC and peak expiratory flow rate (PEFR) were performed on a spirometer (Vitalograph Buckingham MK, 18, ISW, UK).

Table 1: Comparison of Vital Capacity (VC) in laparoscopic cholecystectomy (Group A) and open cholecystectomy (Group B) at 24 and 48 hrs postoperatively with pre-operative (POP) values.

Group	POP	24 hrs	48 hrs
Group A	2.87 ± 0.29	2.16±0.25*	2.4±:0.25
Group B	2.86 ± 0.47	1.57±0.32*	1.88±0.41

Values are mean ± SD
*p < 0.001 compared to POP (student's t-test).

VC was significantly decreased at 24 and 48 hrs post-operatively in both the groups. The decrease in laparoscopic cholecystectomy group was 24.74% and 16.03% at 24 and 48 hrs post-op respectively whereas ill open cholecystectomy group the decrease was 45.1% and 34.27% at 24 and 48 hrs post-operatively respectively.

Table 2: Comparison of Forced Vital Capacity (FVC) in laparoscopic cholecystectomy (Group A) and open cholecystectomy (Group B) at 24 and 48 hrs postoperatively with pre- I operative (POP) values.

Group	POP	24 hrs	48 hrs
Group A	2.79±0.31	2.16±0.24*	2.41±0.26*
Group B	2.76±0.48	1.57±0.32-0	1.88±0.41*

Values are mean±SD.
*p < 0.001 compared to POP (student's t-test)

FVC was significantly decreased at 24 and 48 hrs post-operatively in both the groups. The decrease in laparoscopic cholecystectomy group was 26.52% and 18% at 24 and 48 hrs post-op respectively whereas in open cholecystectomy group the decrease was 46.37% and 35.5% at 24 and 48 hrs post-operatively respectively.

All measurements were made with the patients in the supine position with 30° head tilt upwards.

Diazepam 10mg preoperatively was administered on the night before surgery patients were induced with sodium thiopentone 5mg/kg iv followed by suxamethonium 2mg/kg iv to facilitate endotracheal intubation and buprenorphine 4 mg/kg iv anesthesia was maintained using 66% N$_2$0 in 0$_2$, 0.5% halothane and muscle relaxation achieved with pancuronium bromide 80 μg/kg iv.

Laparoscopic cholecystectomy was performed in the reverse Trendelenburg's position after insufflating the abdomen with CO$_2$ in the Trendelenburg position with an automatic insufflator set at I l/m to a maximum pressure of 12 mmHg. Ventilation was adjusted to maintain ETC0$_2$ between 35 and 40 mmHg. Open cholecystectomy was performed via a subcostal incision.

At the end of surgery, residual neuromuscular blockade was reversed by neostigmine 50 μg/kg iv in atropine 20 μg/kg iv. Patients were shifted to post- operative ward and analgesia (diclofenac sodium IM) was provided on, as and when required basis. Pulmonary function .tests were carried in both groups of patients in the post-operative ward at 24 hrs and 48 hrs post-operatively in supine position with 30° head tilt upwards. The preoperative and postoperative values of pulmonary function tests were compared within and between the groups and the significance of difference in the two groups was evaluated and tabulated using student's t-test.

RESULTS

The two groups were similar with respect to age weight, height and body mass index. Demographic profile Vital capacity was significantly decreased (P < 0.001) at 24 hour and 48 hour postoperatively in both the groups. (Table 1)

Forced vital capacity decreased significantly (P < 0.001) at 24 hour and 48 hour postoperatively in both the groups. (Table 2)

Forced expiratory volume in Is (FEV1) decreased significantly (P<0.001) at 24 hour and 48 hour postoperatively in both the groups FEV1 after laparoscopic cholecystectomy significantly exceeded that after open cholecystectomy at 24 hour (P < 0.001) and 48 hour (P < 0.01) postoperatively. In laparoscopic group the decrease in FEV1 at 24 hour and 48 hour postoperatively was 22.32% and 13.02% respectively while as in open cholecystectomy the decrease was 43.05% and 31.01% respectively.

There was a statistically significant increase (P < 0.001) in FEV1/FVC in both the groups at 24 hour and 48 hour postoperatively, suggesting a restrictively pattern of pulmonary impairment postoperatively.

Peak expiratory flow rate PEFR decreased significantly (P < 0.001) at 24 hour and 48 hour postoperatively in both the groups PEFR after laparoscopic cholecystectomy significantly exceeded that after open cholecystectomy at 24 hour (P < 0.05) postoperatively, while as the increase in PEFR at 48 hour in the laparoscopic group was insignificant (P < 0.70) compared to open cholecystectomy group in laparoscopic cholecystectomy group the decrease in PEFR at 24 hour and 48 hour postoperatively was 46.45% and 31..1.2% respectively, while as in open cholecystectomy group the decrease 49.87% and 29.73% respectively.

DISCUSSION

Alterations in pulmonary function after abdominal surgery and general anesthesia have been well studied.. General anesthesia produces impaired gas exchange as a result of decreased lung volumes, shunting and change in pulmonary mechanics. The effects of general anesthesia are short lived with a return to near baseline function within 24 hours of induction. The effects of upper abdominal operation on pulmonary function, however, is more pronounced and of longer duration, lasting upto at least ten days after surgery. Restrictive patter characterized by a 50% reduction in vital capacity (VC) and 30% decrease in tidal volume (TV) and functional residual capacity (FRC) occur after major abdominal surgeries. Forced expiratory volume in first second (FEV1) decreases probably as a result of decreased lung volume rather than the airway obstruction.

A statistically significant decrease was observed in vital capacity at 24 hrs and 48 hrs between the two groups with lesser decrease in vital capacity in patients belonging to group A (laparoscopic cholecystectomy) compared to group B (open cholecystectomy) (Table-1). Similar observations were made by Johnson et al[10], Coutere JG et al [11], Freeman JA et al [12] and Mealy K et al [13].

Regarding forced vital capacity (FVC) a highly significant decrease (p < 0.001) in forced vital capacity (FVC) was found in both the groups in our study. The decrease was more in open cholecystectomy group than in laparoscopic cholecystectomy group. In laparoscopic group the decrease in forced vital capacity (FVC) at 24 hrs and 48 hrs postoperatively was 26.52% and 18% respectively, whereas in open cholecystectomy group the decrease was 46.37% and 35.5% respectively (Table 2). The results of our study are consistent with that of Diament et al [14], Latimer RG[15], Frazee et al [16] and Rademaker BM [17]

Regarding forced expiratory volume in first second (FEV1) a highly statistically significant decrease (p < 0.001) in forced expiratory volume in first second (FEV1) in both the groups studied at 24 hr postoperatively forced expiratory volume in first second (FEV1) after laparoscopic cholecystectomy at 24 hrs and 48 hrs postoperatively. In laparoscopic group the decrease in forced expiratory volume in first second (FEV1) at 24 hrs and 48 hrs postoperatively were 22.32% and 1.3.02% respectively, whereas in open cholecystectomy group the decrease was 43.05% and 31..01.% respectively. Similar changes in forced expiratory volume in first second (FEV1) were reported by Rademaker BM et al [17], Putensen G [18], Couture JG [11].

Postoperative pulmonary dysfunction has primarily been considered a restrictive process. The ratio FEV1/FVC helps to distinguish between obstructive and restrictive pattern. In patients with obstructive pattern i.e., air flow limitation the FEVI/FVC is reduced, but in patients with restrictive disease the ratio is normal or increased. In our study we noted a significant increase in FEVI/FVC in both groups. Similar changes in FEVI/FVC were reported by Freeman JA et al [12], Schauer PR et al [19], and Rademaker BM[17].

The decrease in peak expiratory flow rate (PEFR) was highly significant in both groups (p < 0.001). The decrease in peak expiratory flow rate (PEFR) was 46.45% and 31.12% in the laparoscopic group at 24 hrs and 48 hrs postoperatively, while as the decrease was 49.87% and 29.73% in the open cholecystectomy group at 24 hrs and 48 hrs postoperatively. When comparing the peak expiratory flow rate (PEFR) in both the groups the difference in peak expiratory flow rate (PEFR) was significant (p < 0.05) at 24 hrs whereas at 48 hrs postoperatively the difference was insignificant (p< 0.70). Our findings are in agreement with the findings of Scheur PR et al [19] and Redmaker BM[17].

The normal value of peak expiratory flow rate (PEFR) in healthy adults is 500 l/min. values of less than 200 l/min suggest impaired cough efficiency and strong likelihood of postoperative complications (30). In our study peak expiratory flow rate (PEFR) remained above 200 l/min in the laparoscopic group whereas in open cholecystectomy group peak expiratory flow rate (PEFR) recorded at 24 hrs postoperatively was 181±37.49, whereas at 48 hrs peak expiratory flow rate (PEFR) was more than 200 l/m. this preservation of PEFR in laparoscopic group is one of the reasons for the decreased incidence pulmonary complications in patients undergoing laparoscopic cholecystectomy.

The difference in respiratory function after laparoscopic and open cholecystectomy cannot be explained by duration of anesthesia or postoperative care. Several other mechanisms may be responsible for the marked depression of pulmonary function after upper abdominal surgery including surgical incision local abdominal pain[20], and diaphragmatic dysfunction[6]. Abdominal muscles act during forced expiration and coughing [21]. The site of surgical incision and transaction of the abdominal muscles has been demonstrated to have major impact on depressed pulmonary function after cholecystectomy[4,5].

Since open cholecystectomy is associated with a long subcostal incision and transaction of rectus abdomens muscle it is evident that expiration is impaired. In contrast laparoscopic cholecystectomy requires only four small incisions for the insertion of trocars[7]. Thus laparoscopic cholecystectomy might be expected to decrease the pulmonary function less than a sub costal incision with muscle splitting[4]

Diaphragmatic dysfunction after upper abdominal surgery is related to pain, an increase in abdominal wall tone and reflexes due to local reflexes of gall bladder[22]. The local stimulation and irritation should be comparable in both the laparoscopic and open cholecystectomy surgical candidates. Increased abdominal pressure associated with CO_2 insufflation during laparoscopy on postoperative diaphragmatic function may have caused the significant decrease in vital capacity, forced vital capacity, forced expiration in first second (FEV1) in the laparoscopic group but this mechanism seems to be of less clinical importance since depression of respiratory function is less and recovery is improved compared to open cholecystectomy.

Our study confirms improved perioperative respiratory performance with laparoscopic cholecystectomy in comparison with open cholecystectomy. The decreases in VC, FVC, FEVI and PEFR were all significantly improved with the laparoscopic procedure.

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An Unusual Case of Loffler endomyocarditis of the aortic value

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Abstract :-

Idiopathic hypereosinophilic syndrome is a rare systemic disorder with an unexplained elevated eosinophil count. Loffler endomyocarditis is hypereosinophilic syndrome with endocardial fibrosis and restrictive cardiomyopathy. We describe a previously healthy 28 year male with Loffler endomyocarditis with restrictive cardiomyopathy involving right sided heart and moderate aortic regurgitation due to valve fibrosis and fibrotic vegetation of the aortic valve.

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INTRODUCTION

Idiopathic hypereosinophilic syndrome is a leukoproliferative disorder, marked by sustained overproduction of eosinophilis and its marked predilection to damage specific organs, including the heart[1]. Frequently there is endocardial fibrosis with superimposed mural thrombus, resulting in restrictive cardiomyopathy described as Lofler endomyocarditis. The atrioventricular valves are frequently involved leading to atroventricular regurgitation[2]. Previously there has been one case report of combined aortic and mitral valve involvement of Loffler endomyocarditis that was treated with bivalvular replacement[3] and other case of Loffler endomyocarditis complicated by peripheral thromboembolism and severe aortic regurgitation due to valve fibrosis and fibrotic regurgitation on the aortic valve. We describe an unusual case of Loffler endocarditis with endomyocardial fibrosis of aortic valve with moderate aortic regurgitation. To our knowledge this is the third case only of Loffler endomyocarditis in which aortic valve is involved.

Material and Methods (report of a case)

A 28 year old male with unremarkable medical history in the past presented with symptoms of fever and right heart failure of twenty five days duration. The symptoms got relieved by salt restriction and diuretics over one week period. The patient also gave history of low grade fever of 100-101oF of the same duration more during evenings and associated with chills. There was also history of precordial pain intermittent type of the same duration and had no relation with exhaustion. Patient also complained of breathlessness with ordinary work. Clinical examination revealed general physical asthenic habitus with dark complexion pigmentations. His pulse rate was 80 beats/min regular and fair in volume. Brachial artery blood pressure of 110/70 mmHg, jugular venous pressure was 16 cm of H_2O with prominent X and Y descent. Kusmaul's sign was positive. There was no pedal edema. Chest examination revealed bilateral vesicular breath sounds with decreased intensity at bases.

Cardiovascular examination showed apex beat at 5th intercostal space of hyperdynamic type. There was no thrill or any palpable sound. S1 and S2 were heard. P2 was of normal intensity, with right ventricular S3. Pansystolic murmur at tricuspid area which increased with inspiration. In addition there was early diastolic murmur at aortic area. He had no pericardial rub. Abdominal examination revealed hepatosplenomegaly with ascites. CNS examination was normal. Investigations done revealed Hb - 12.2 gm%, TLC - 53.69, DLC - P2L3E095, repeat TLC - 64.36, DLC - P1L4E095, ESR - 22mm/1 hr, platelet count - 1.19 lac, repeat 93000/cumm, normal urine exam. Liver and kidney function were normal. CkMB isoenzyme 29.0gm/lit. Hepatitis serology was negative. Coagulation and collagen profile were negative, blood culture was sterile and tuberculosis profile was negative. Stool for ova and cysts was negative. Bone marrow examination revealed hypercellular marrow with marked increase in eosinophils and its precursors

Key words: aortic value, cardiomyopathy, endomyocarditis

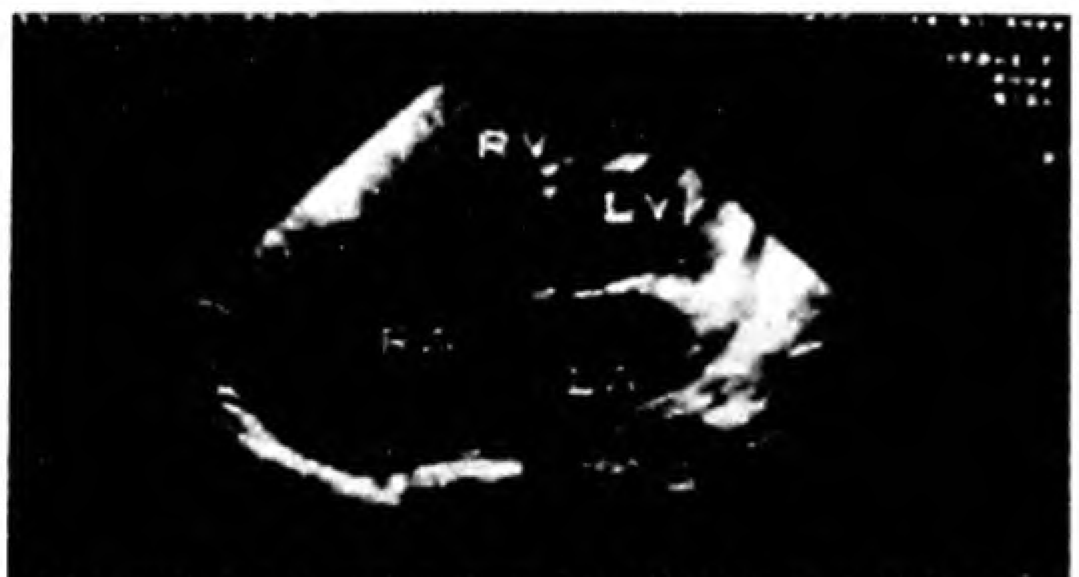
with adequate iron stores, consistent with hypercellular marrow.

Ultrasound abdomen revealed free fluid in abdominal cavity and hepatosplenomegaly. X-ray chest revealed mild cardiomegaly with prominent right heart border, there was no PAH or PVH. ECG showed sinus rhythm, normal axis, negative p waves in lead I and AVL Q in and AVL and RSR pattern in Vi

Transthoracicecho revealed AO-3.0, LA 3.5, LV< 5.0/3.2, EF 64%, RV - 3.5cm, RA and RV were dilated. Thickened tethered septal leaflet of tricuspid valve with thickened RV and LV apices. RV apex was obliterated(Fig. 1), AML flutter was present, pulmonary valve was normal, aortic valve was thickened. Colour doppler revealed severe low pressure tricuspid regurgitation with right ventricular systolic pressure of 35mmHg. Mitral value doppler study was normal and aortic valve colour doppler revealed aortic regurgitation of moderate severity(Fig. 2).

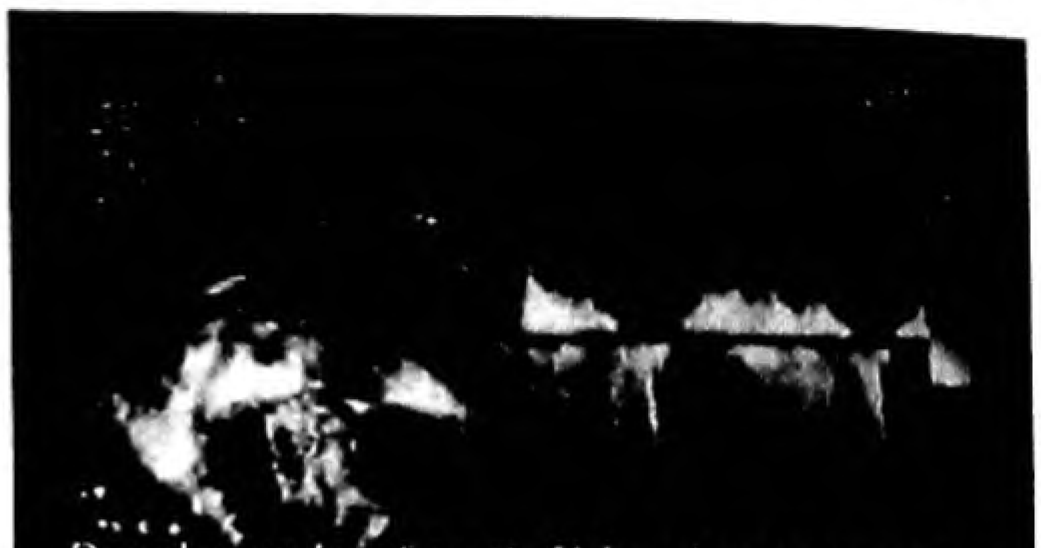
Discussion

In 1936 Loffler described two patients with progressive cardiac failure, eosinophilia and murmurs of mitral regurgitation. At autopsy, the patients had extensive fibrotic thickening of the mural endocardium of both right and left ventricles with superimposed thrombus in the left ventricle[4]. The mural endocardial fibrosis and thrombosis were later described by Fauci et al[5] to be virtually limited to the inflow tracts of the cardiac ventricles, more frequently involving the ventricular aspects of the posterior mitral and tricuspid valve leaflets. Hypereosinophilic syndrome is defined by unexplained eosinophilia (an eosinophil count > 1500/L)(1), without evidence of parasitic, allergic or neoplastic cause for more than 6 months in the presence of end organ involvement. Eosinophil mediated heart damage evolves through three stages. The first state is an acute necrotic followed by thrombotic stage, which leads into a fibrotic stage clinical findings in the first stage can be absent with normal echocardiography and angiography. The second stage is characterized by the formation of thrombi along the damaged endocardium of either or both ventricles and ocassionally the atrium[1], the outflow tracts near the aortic and pulmonary values are almost always spared, more commonly, a thrombus will form on the atrioventicular value leaflets[3]. Finally the fibrotic stage, progressives scarring of the endomyocardium may lead to entrapment of chordae tendinae, causing mitral and or tricuspid cardiomyopathy [5,6]. Two dimensional echocardiography is valuable in detecting. Intracardiac thrombi and thickening of posterior mitral valve leaflet and its attachment to the posterior wall. Cardiac catheterization may show increase in the right and left ventricular end diastolic pressures and valvular incompetence; it may also show apical obliteration or irregularities.



Transthoracic echo showing dilatation of RA and RV with thickened RV and LV apices

Hypereosinophilic syndrome patients often present at the later thrombotic and fibrotic stages with complaints of dyspnoea or chest pain, signs of left and/or right ventricular congestive heart failure, murmurs of mitral regurgitation, cardiomegaly and/or 'T' wave inversion on electrocardiography. Those who develop thrombosis may present with thromboembolism[7].



Doppler study of aortic Value showing moderate aortic regurgitation

The case under discussion was a 28 years male who presented to us with a recent onset right heart failure and with echo documented restrictive cardiomyopathy involving right heart and endomyocardial fibrosis of the aortic valve with moderate aortic regurgitation. The patient had marked eosinophilia confirmed on PBF and bone marrow biopsy. The patient was managed with antifailure treatment and prednisolone (1 mg/kg), during hospital stay he showed objective improvement, however there was no change in eosinophil count, the patient was lost to follow up.

To our knowledge this is the third case in the literature in which Loffler endomyocarditis involves the aortic valve.

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Multiple bilateral rib fractures associated with severe coughing (Case report and review of literature)

Mohd Shameem, R Bhargava, Z Ahmed , Naveed

Abstract

Severe chronic coughing infrequently causes rib fractures and these stress fractures occur in one rib. We report an unusual case of multiple bilateral rib fracture caused by severe coughing associated with COPD.

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Case report:

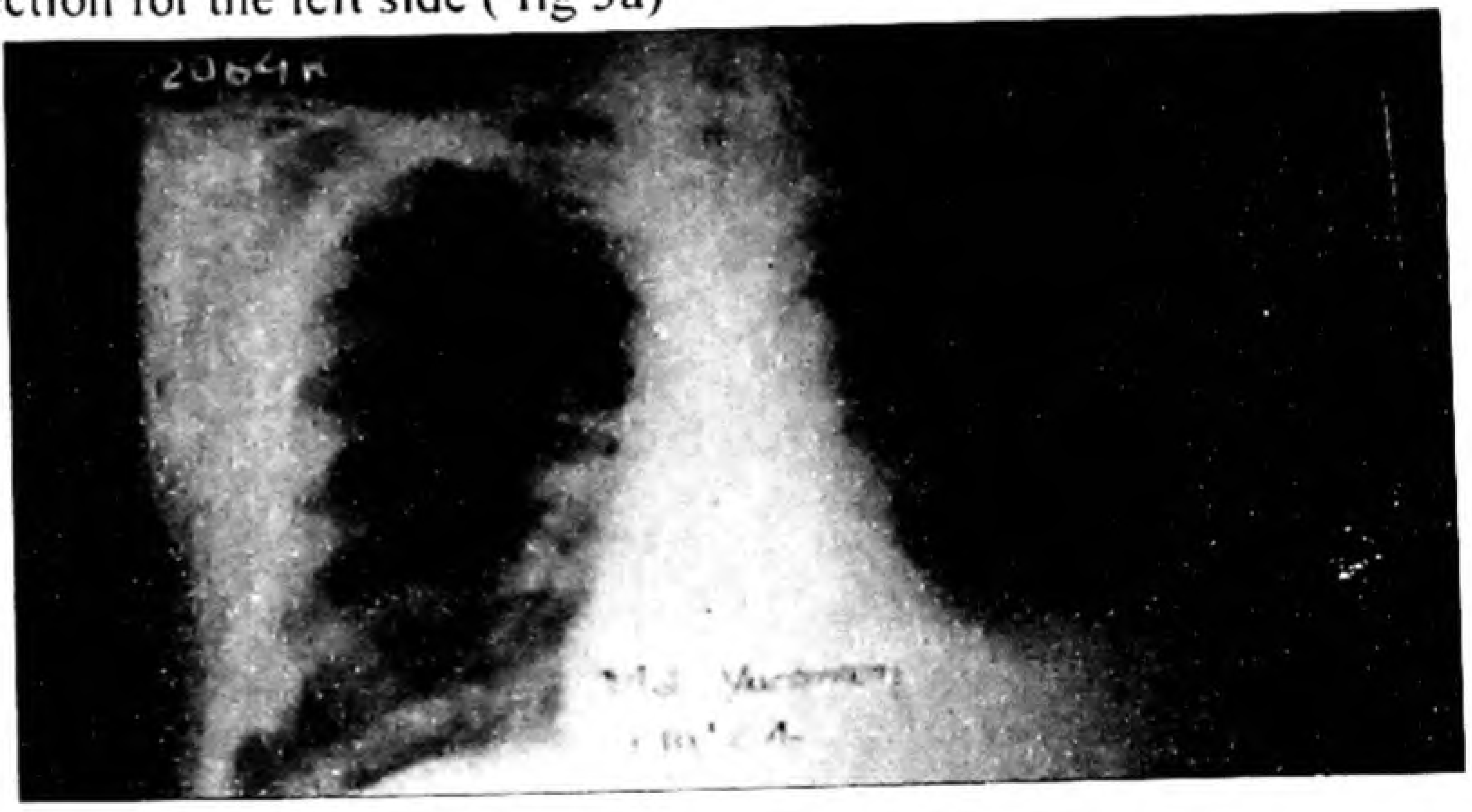
A 40 years old man , reported in OPD of TB & Chest diseases with complains of severe coughing , chest pain on both side of the chest. On examination positive findings were prominence of accessory muscle of respiration , tenderness over both hemithorax , coarse crepts over both hemithorax involving mainly infrascapular areas.

Radiograph (fig-1) showed oval hyperostosis involving 7th to 11th ribs on the right side , on the left side rib fracture was seen involving 8th and 9th rib. CT thorax (fig-2; bone window) shows multiple rib fracture postero – laterally from 7th to 11th rib on right side and 8th to 9th rib on left side . Open biopsy of 7th rib of right and 8th rib of left showed normal fracture healing with abundant cartilaginous tissue and revascularisation , rather than a pathological fracture. The diagnosis was cough related stress fracture.

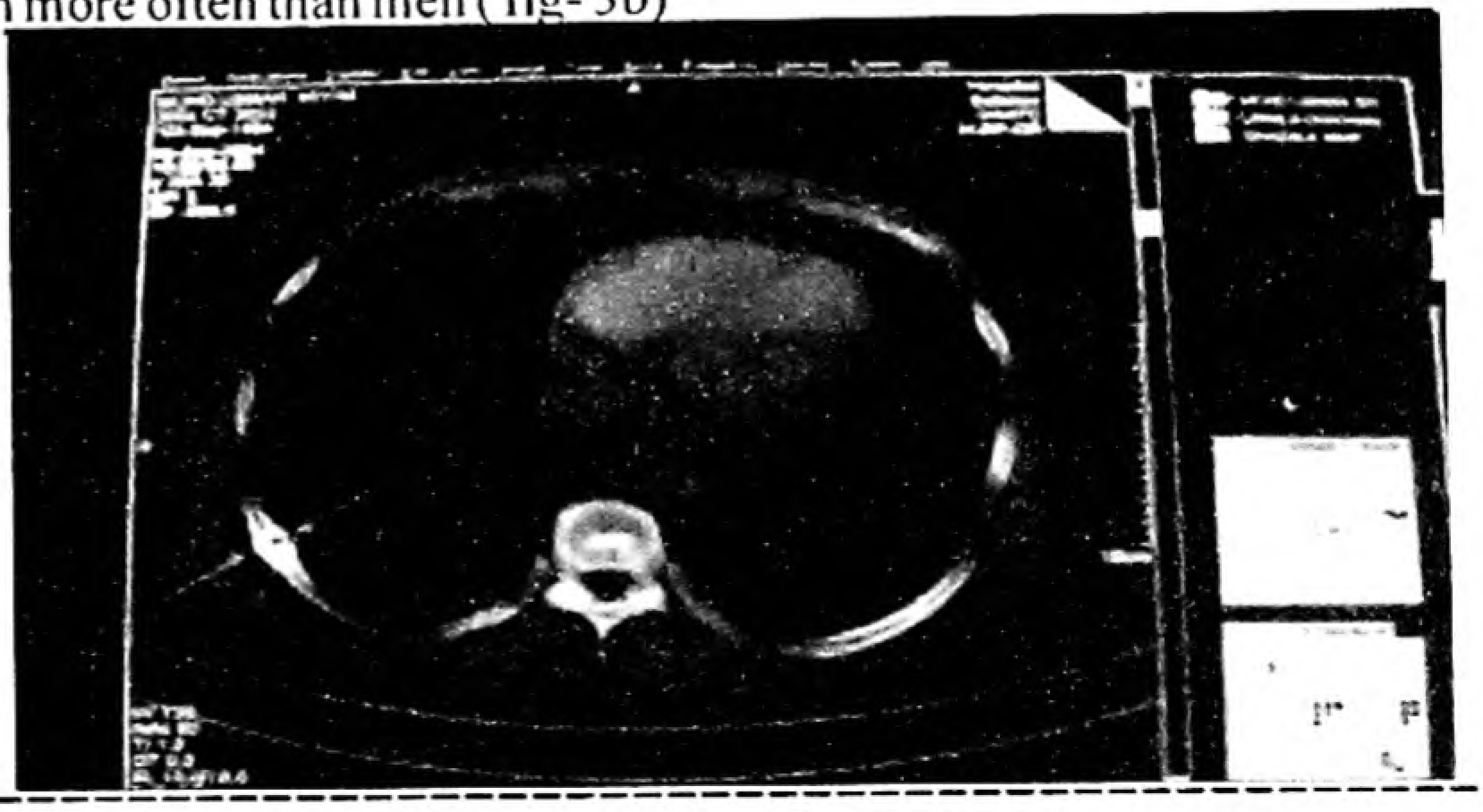
Treatment was antitussive medication, rest and restriction of heavy work, and usual medication for COPD .

Discussion :

The cough fractures occur mainly of 6th to 9th ribs with a slight predilection for the left side (fig 3a) [1]



Cough fractures mostly occur in the 3rd and 4th decade and effect women more often than men (fig- 3b) [2,3]



Key words : *COPD , Cough fracture , bronchitis*

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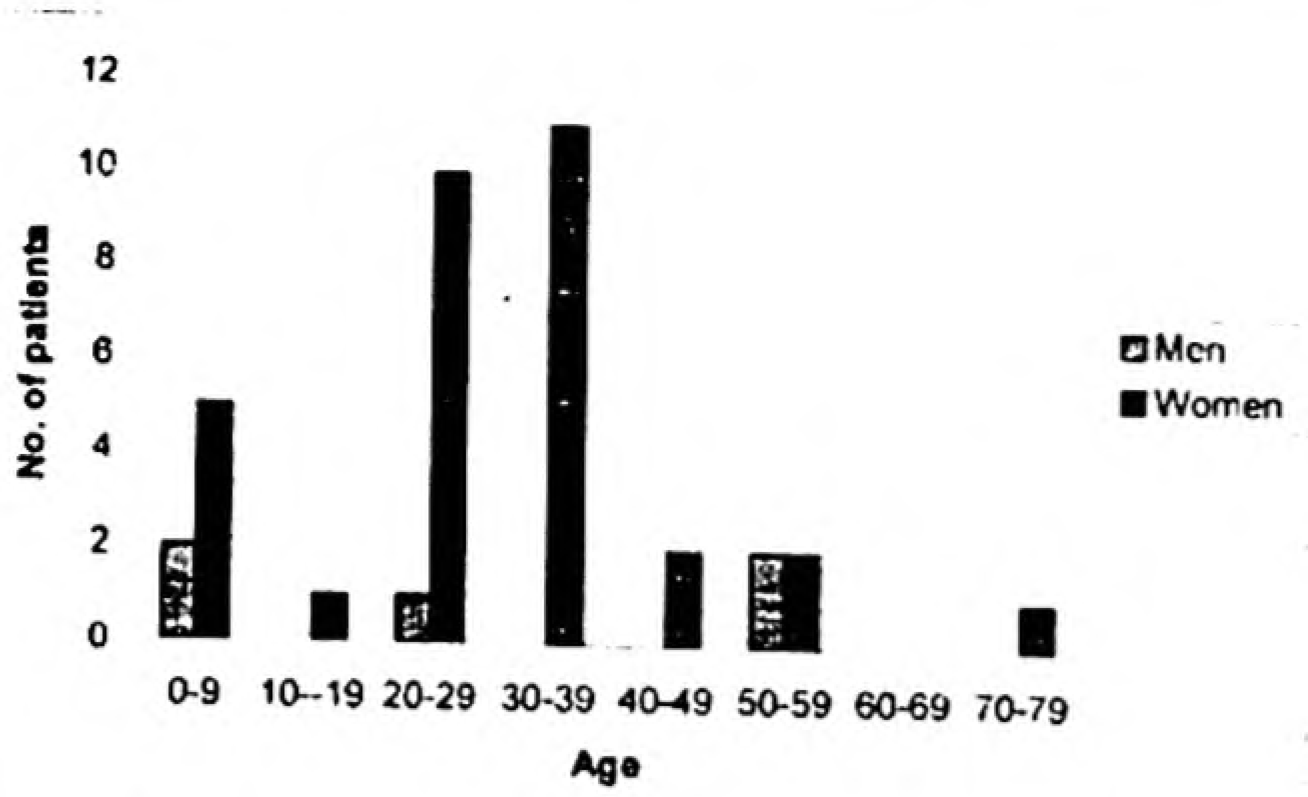

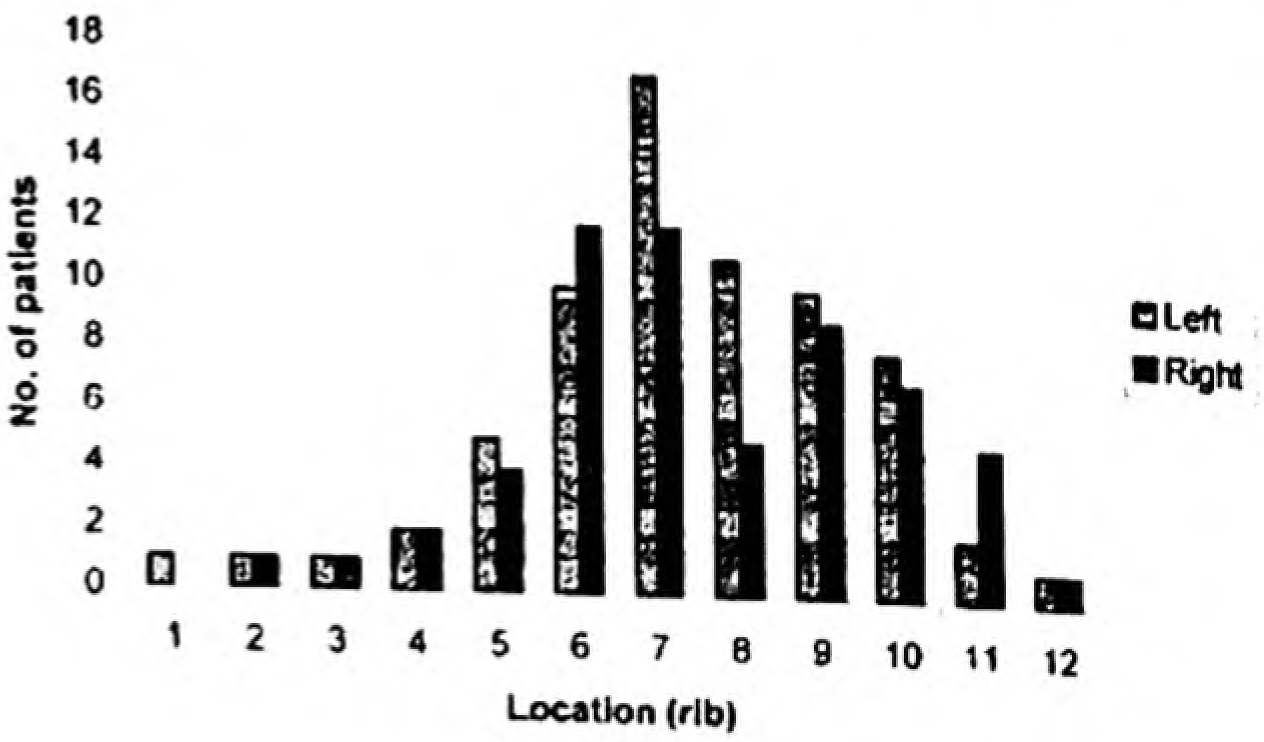

The fractures usually occurs in the middle of the rib between the costochondral junction and the costal angle. Sheering forces are applied to the rib at the axillary line where serratus anterior and the external oblique muscles are attached[4]. The important role of bending stresses inducing a transverse, rather than oblique, fracture has also been emphasized[1,5]. Longitudinal tensile stress usually produces a transverse stress fracture of compact bone [5], whereas shearing forces produce an oblique fracture.

The patient mentioned in this case report showed transverse fracture lines suggesting tensile stress as the mechanism. The configuration of an arcuate and spinal rib is, however, unlikely to be affected only by tensile forces. Multiple factors are involved including expansile forces during respiratory movements, tensile as well as shearing forces, the reduced diameter, increased curvature of the rib at the fracture site, and traction by the external oblique muscles and the rectus abdominis fascia.

Multiple and bilateral cough fracture were an unusual feature of our case. Radiograph and biopsy showed variable degree of healing, severe coughing may have caused one fracture at a time and continuous coughing may have delayed healing.

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Candidiasis in a very Low birth weight neonate.

Ghulam Nabi,Bashir Ahmad Yatoo,Khalid M. Saidy, Omar Nabi.

Abstract :-

In newborn the prevalence of systemic fungal infections has increased significantly during the past decade, especially if their defense against infection altered by disease or therapy. Candidiasis may cause severe and even fatal disseminated infection with involvement of almost all tissues of the body. Disseminated Candidiasis in significat source of mortality and morbidity in neonatal intensive care nurseries.

We are presenting a very low birth weight infant with disseminated invasive candidiasis including meningitis.

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CASE REPORT

Male preterm 30 weeks gestational age born to gravida two Para one mother by spontaneous vaginal delivery. Apgar scores were 5 and 8 at 1 & 5 minutes. Birth weight 1.2 kilogram (kg.), length 38 centimeters (cm.), head circumference 28 cm. Soon after birth, developed respiratory distress and needed mechanical ventilation. Both umbilical arterial and venous catheters were inserted and antibiotics (Gentamicin & Ampicillin) were started. Hyaline membrane disease was diagnosed, and in view of the clinical picture, initial arterial blood gas and chest x ray, single dose of surfactant therapy was given, showed clinical improvement. Haemodynamic was maintained with inotrope infusion (dopamine). Ultrasonography of the brain revealed intraventricular hemorrhage without dilatation of the ventricles (Grade II Papile classification). On 5th day of life' in view of better clinical condition, both umbilical catheters were removed, dopamine infusion was stopped and nasogastric feeding was initiated. Same day patient got accidentally extubated and was put under oxyhood with 40% oxygen. On 6th day of life, patent ductus arteriosis was diagnosed and confirmed by echocardiography. Patient was put on restricted fluids and diuretic (frusamide), and within a week time the duct closed. Final blood culture yielded no growth and antibiotics were stopped. On 10th day of life, patient became pale, cyanosed, lethargic, tachypneic and developed multifocal myoclonic seizures, nosocomial infection was suspected. Patient was resuscitated and reventilated for recurrent apnea. Broad-spectrum antibiotics (vancomycin and ceftazidium) were started after full septic screening. Seizures were controlled with intravenous phenobarbitone. Hemotogical profile revealed low hematocrit with high white blood cell and low platelet counts. Cerebrospinal fluid (CSF) analysis revealed increased white cell count (120 cells/cm3 with 80% polymorphs), high protein (350 mg/dl) & low sugar (1.0 mmol/l). Blood, CSF and urine cultures growth yielded candid albicans, which was sensitive to amphotricine B. Ophthalmic examination revealed normal eyes. Screening of cardiovascular system by echocardiography showed vegetation in the right atrium. Patient developed acute renal failure with (urine out put = 0.3 ml/kg/hour), serum urea (18 mmol/l) and creatinine (160 mmol/l). Ultrasonography of genitourinary system showed sediments (fungus balls) in the urinary bladder. Patient developed metabolic acidosis which was corrected with alkali therapy. So, patient diagnosed as a case of invasive systemic candidiasis. Antibiotics were stopped and amphotricine B was started initially with 0.5mg/kg/day and gradually increased to 1 mg/kglday.within a period of one week of treatment, patient improved clinically and biochemically. Repeat blood culture yielded no growth. Patient was extubated and was kept under oxyhood' with 40% oxygen. The treatment was continued for a period of 6 weeks duration. N.G.T. feeding was restarted with preterm milk formula. on day 33rd of life, patient again deteriorated,

Key words: Candidiasis, infection, neonate

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became cyanosed with skin mottling, bulging of the anterior fontanel, and seizures. Septic screening done and blood culture revealed growth of methacillin resistant staphylococcus aureus (MRSA)' Patient was supported with blood and blood products and treated with appropriate antibiotic for a period of 2 weeks' Neuroimaging including ultrasonography and C.T. scan of the brain revealed dilatation of the lateral ventricles, third ventricle, and widening of intsrhemispheric fissure' clinically there was no apparent major neurological deficit detected. Finally, at three months of & Ee, he was discharged home on full oral feed with 2 Kg body weight length 43 cm' head circumference 33.5 cm. He was seen once in the follow up.

Discussion :

Neonatal candida sepsis occurs mostly in extreme premafure infants who have poor immune function. Multiple invasive interventions, inadequate skin barrier to infection, poor nutrition and prolonged use of broad spectrum antibiotics that suppress protective flora in addition immaturity of the immune system specially among preterm neonates which mainly involves T cells and neutrophils, further predisposes to infection. All of these constitute recognized risk factors for disseminated candidial infection. The rate of candidemia has increased eleven fold in the last seventeen years in NICUs . Candidial infection causes significant mortality, morbidity and appropriate treatment includes the use of potentially toxic drugs such as Amphotericitn B, Flucytosine and Fluconazole. Candida albicans is usually the most common fungal infection in neonates and has been the fungus most frequently isolated in intensive care nurseries. Candidal meningitis is one of the most common manifestation of invasive candidiasis. Up to 64% of neonates dying with invasive candidiasis have central nervous system involvement and more than two third of these babies have positive cerebrospinal fluid cultures at some point in their disease. candidal meningitis usually presents as part of the syndrome invasive or disseminated candidiasis . Survivors of candidal meningitis have high incidence sequelae (hydrocepahlus, psychomotor retardation, and aqueductus stenosis. Candidial endocarditis has been found to be the second most conlmon form of endocarditis in this age group. Fungal mass can manifest with heart failure or even with pulmonary fungal embolism' Echocardiogram should be done in neonates with candidiasis. Fungal endocarditis can be cured with antifungal drugs. candidial urinary tract infection (UTI) is the most frequent cause of UTI in NICU. About half of these are found to have concomitant candidemia. In addition this population is particularly predisposed to suffer renal candidiasis which refer to renal fungus balls or renal fungal abscesses. Between 35-42 % of neonates hospitalized in NICU with candiduria will have renal candidiasis, unilateral or bilateral renal obstruction may occur. In conclusion use of invasive therapies should be minimized for premature neonates at risk for invasive candida infection, that is associated with adverse outcome. Positive culture for candida species recovered from a neonates should never be disregarded.Ampotericin B is active against most species of fungi that cause human infection.The true incidence of Amphotericin B resistence is unknown. In addition candidiasi should be considered in the differential diagnosis sepsis in the neonates. The incidence of candida infection in very low birth weight infants (< 1500 gm) is reported to be 3-5 %, but in extreme low birth weight (ELBW) infants (<800 gm) is as high as 18 -20%. However, the mortality rate of infected ELBW infants range from 20-55%. Candida Albicans (Parapsiosis) and (Torvalopsis glabrata) are the organisms most frequently identified in these infections. The major risk factors that have been well described for DIC, are extreme prematurely, especially the ELBW infants, prolonged endotracheal intubation. The use of broad spectrum antibiotics, central venous catheters and intravenous alimentation with lipids.

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Foreign Body In Bladder : A Diagnostic Dilemma

Mufti Mahmood, Vipul Tandon, US Dwivedi, PB Singh

Abstract :-

Foreign bodies in bladder being unusual in the clinical setting present as a diagnostic dilemma with the history being vague as highlighted by the present case of a 28 years old female who was found to have multiple long rubber tubings coiled together in the bladder. Cystoscopic retrival was not possible as the rubber tubings had formed a huge coiled mass. The tubings were removed by a suprapubic cystostomy. Postoperative period was unevent ful.

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Case Report

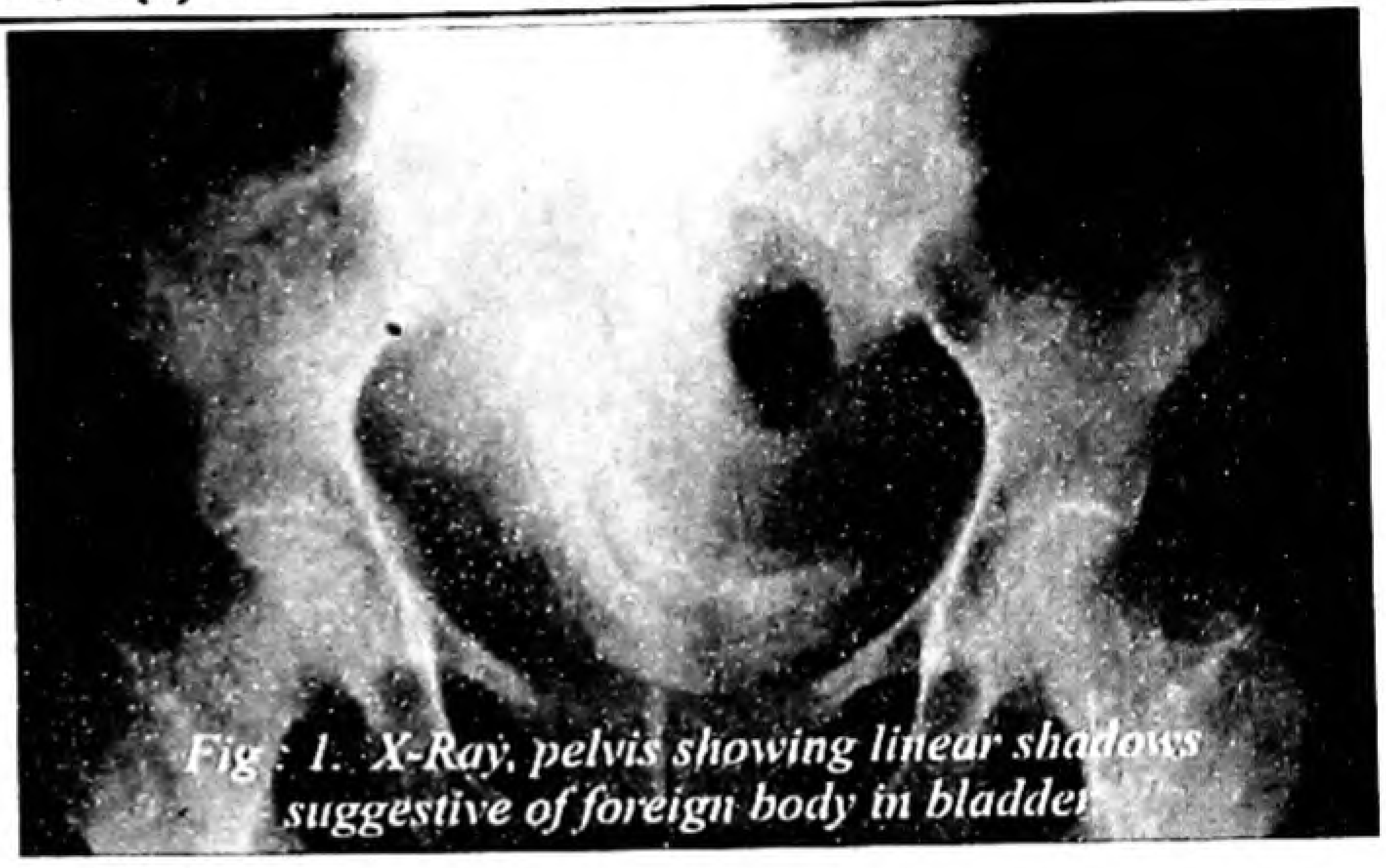

Fig : 1. X-Ray, pelvis showing linear shadows suggestive of foreign body in bladder

28 years ol'd married female presented with complaints of constant dribbling of urine per vagium for 4 months with occasional haematuria and left flank pain. She had a history of fall from a roof during her 5th month of pregnancy which culminated in intrauterine fetal death. She was attended by a local practitioner who resorted to some intravaginal manipulation. the details of which were not known. On examination, the patient was anaemic and had a vague firm lump palpable in the suprapubic region. Per vaginum examination revealed foul smelling discharge. Laboratory investigations were unremarkable except for a Hb of 6.5 gm%. Transabdominal ultrasonography showed left mild hydroureteronephrosis with some foreign body in the bladder. X-ray pelvis (Fig. 1) showed multiple linear structures suggestive of some foreign body. Cystoscopy revealed a small capacity bladder with erythematous mucosa and containing multiple, coiled red rubber tubings which were abutting the left ureteric orifice. Suprapubic cystotomy

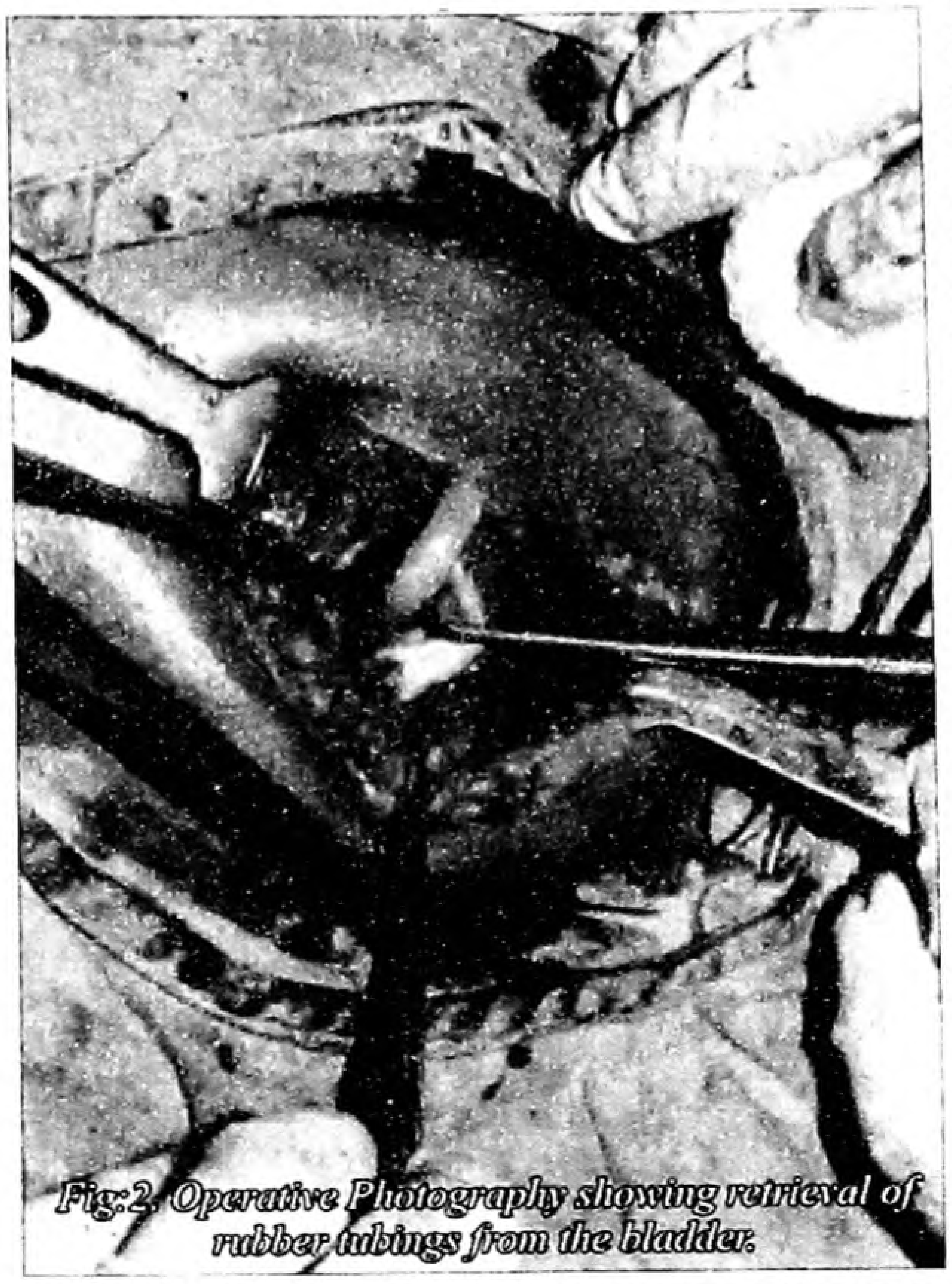

Fig:2. Operative Photography showing retrieval of rubber tubings from the bladder.

Keywords: *Bladder, Rubber tubings suprapubic cystotomy*

was performed under regional anaesthesia. Three coiled red rubber tubings were removed from within the bladder (Fig. 2). A small fistulous opening measuring <1 cm in size was detected on the posterior wall of the bladder just above the trigone. Cystotomy was closed after placing a perurethral catheter. Postoperative period was uneventful.

Comments :

Cases of foreign bodies in the genitourinary tract are always of interest because they occur with such frequency that every urologist and practitioner may expect to treat them. The urinary bladder is considered the main site of foreign bodies in the genitourinary tract, with many foreign bodies reported in the bladder encompassing a bewildering array of objects available within the environment. Foreign bodies are generally inserted by the patient himself. Most of the patients are aware of the incident and seek medical care. However, some patients, especially with psychiatric disorders, may forget the incident and the foriegn body can remain in the urethra or bladder for several years. The bladder can be the site of various types of foriegn bodies. Surprising foreign bodies such as light bulbs, plastic beans, blu-tacks and thermometers have been reported[1-3] The presence of multiple ruber tubings in the bladder of the present case highlights the complication of bladder injury following intravaginal manipulation while attempting to terminate the pregnancy.

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Magnetic Resonance Cholangiography in Biliary Ascariasis

Bilal A. Khan, Andleep Shadan, Malik Suhail, Majid Jehangir, Omar Kirmani, Malik GM.

Abstract :-

Magnetic resonance cholangiography (MRCP) is a noninvasive tool for imaging hepatobiliary tree and has replaced diagnostic endoscopic retrograde cholangiography. Few reports of MRCP in bliary ascariasis have been described in literature. We descrie MRCP MRCP finding in a pregnant female with biliary ascariasis.

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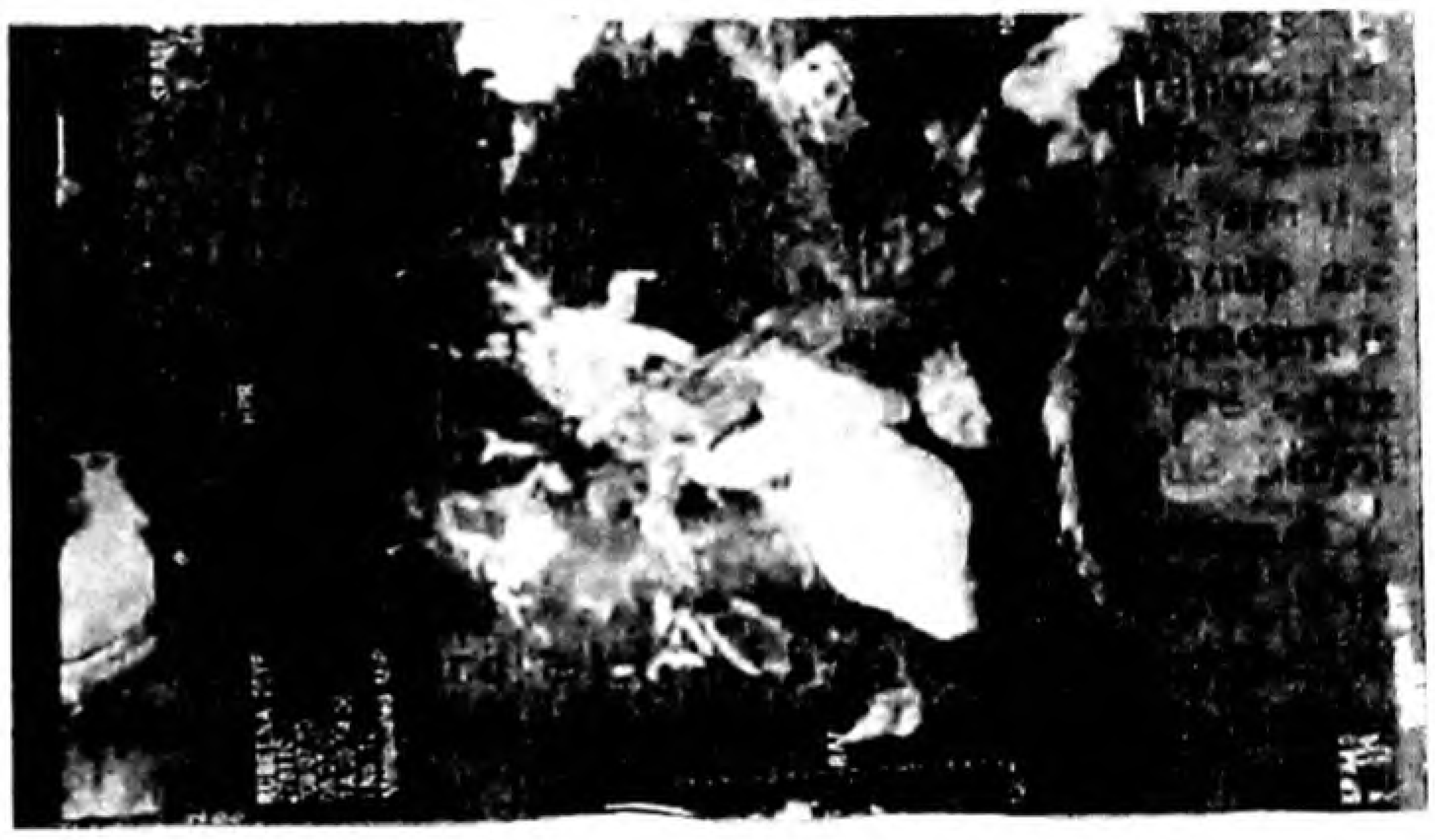
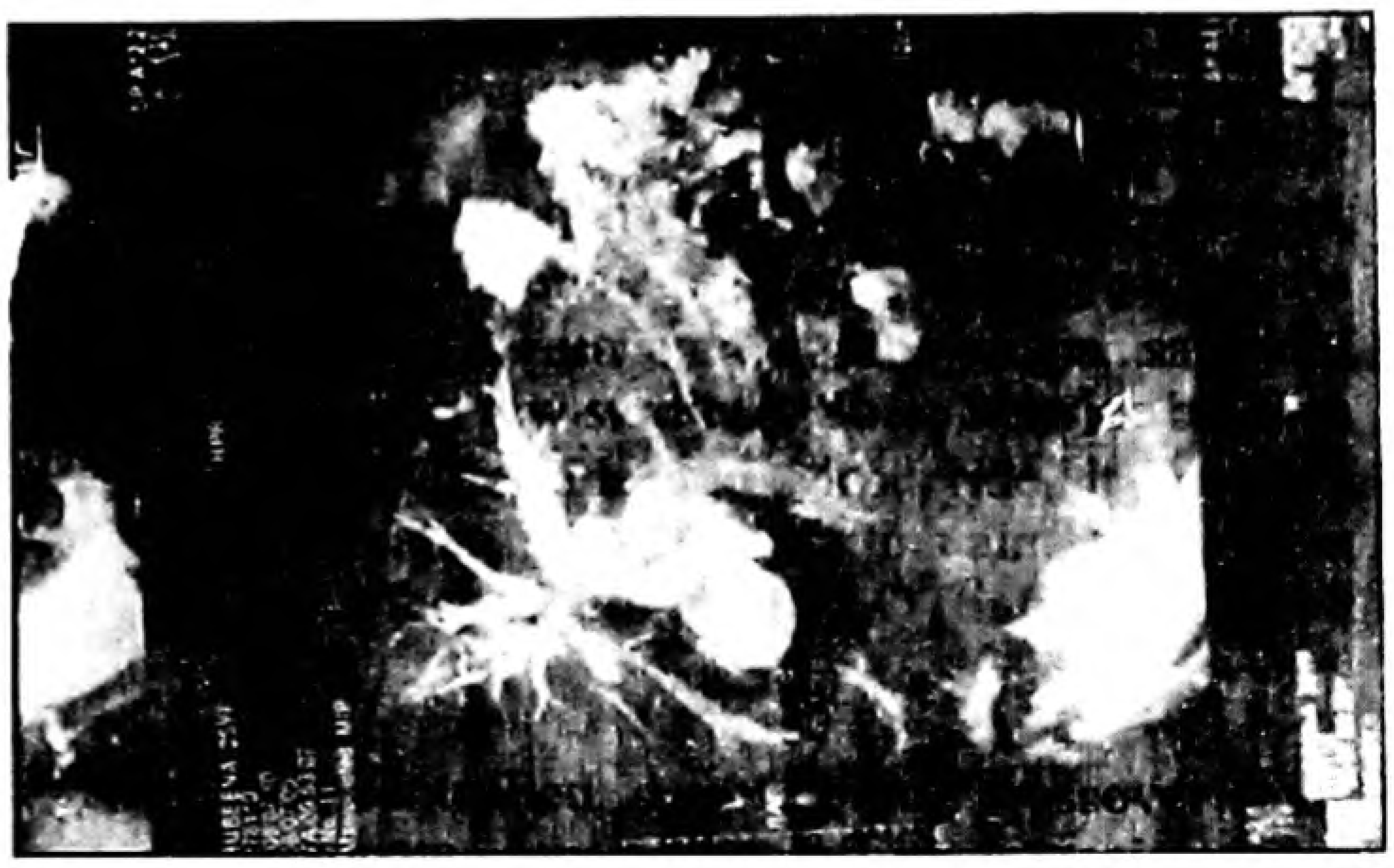
Introduction:

Ascariasis is a common disease in many developing countries and is a common cause of biliary and pancreatic diseases in endemic areas. Numerous studies have been pubiished on biliary tract ascariasis. All these have documented ultrasonography as the primary imaging modality for biliary tract ascariasis . Magnetic Resonance Cholangiopancreatography (MRCP) has been the latest entrant for the study of bilary tract.



Case Report :

A 25 year old primigravida presented with 3 weeks history of increasing postprandial pain followed by jaundice with pruritis and clay colored stools. Subsequently she developed fever with rigors and chills. Her clinical evaluation revealed icterus, hepatomegaly and fundal height of 32 weeks. Investigation revealed leucocytosis hyperbilirubinaemia, mild transaminitis and raised alkaline phosphatase and sterile blood culture. Ultrasound abdomen showed multiple tubular echogenic structures in common bile duct (CBD) gallbladder and right and left hepatic ducts and single live fetus.



MRCP revealed dilated CBD and intraheptic biliary radicals (IHBR) with multiple hypointense linear structures and curved hypointense signal within gallbladder (Fig 1,2). She was treated with antibiotics and antihelminthics and her jaundice and fever subsided. Followup ultrasound showed worm in gallbladder and intrahepatic ducts and normal CBD. She is planned for endoscopic extraction and cholecystectomy in postpartum period.

Keywords: *Biliary Ascariasis, MRCP, Jaundice*

Discussion :

In India ascariasis is endemic in Kashmir Valley[1]. The migration of a worm through the papilla of vater into viliary tree leads to biliary colic, recurrent pyogenic cholangitis, pancreatitis, hepatic abscesses and septicaemia[1,2].

In biliary ascariasis ultrasound is the imaging modality of choice. The USG findings of biliary ascariasis are tubular echogenic nonshadowing structures with a thin longitudinal central sonulecent line, multiple worms in CBD produce `spaghetti sign' or manifest as hyperechoic pseudotumors[3,4]. Few reports have described the MR findings of biliary ascariasis. MRCP shows intraductal worms as linear hypointense filling defects in the biliary tree. State of art MRCP using single shot RARE technique provides excellent images comparable to those obtained by endoscopic retrograde cholangiography[5].

Conclusion :

MR cholangiography is a valuable noninvasive tool that clearly demonstrates biliary ascariasis.

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Effect Of Itopride hydrochloride on QT interval in adult healthy volunteers

Seema Gupta, Vinod Kapoor, B.M. Gupta, B. Kapoor, Ujala Verma, Vikram Gupta

ABSTRACT

The objective of the present study was to evaluate the effect of Itopride hydrochloride on QT interval in a randomized, placebo controlled, double blind, cross over study. Itopride hydrochloride in a dose of 50 mg three times a day was administered to ten healthy male adult volunteers followed by placebo with a washout period of one week. 12 lead ECG recordings (minimum three) were taken before and after the test drug. Corrected QT intervals (QTc) were measured by using Bazett's formula. Mean QTc interval values for individual drugs were analysed using two tailed paired t test and unpaired t test was used when post drug QTc interval values of Itopride and placebo were compared. No statistically significant change was observed in the QTc interval with Itopride and the results were comparable with that of placebo.

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Introduction :

Treating patients with gastrointestinal symptoms caused by reduced gastrointestinal motility such as non-ulcer dyspepsia (NUD), gastro-esophageal reflux disease (GERD), diabetic gastroparesis and functional dyspepsia presents a major challenge in clinical practice. Prokinetic agents such as Metoclopramide, Domperidone, Cisapride, Mosapride etc. are the mainstay of therapy in these disorders. All the drugs in this group are efficacious with modest prokinetic activity but the matter of major concern is their safety profile. The main side effects of Metoclopramide are extra pyramidal such as dystonic reactions and Domperidone though is devoid of extra pyramidal effects, is associated with galactorrhoea or gynaecomastia[1]. Cisapride has the potential to cause QT prolongation on ECG, thus predisposing to cardiac arrhythmias and its use has been restricted by the US FDA[2]. Mosapride too belongs to the same group and although its side effects are not well documented, it has drug interaction potential similar to that observed with Cisapride[3]. In this context, a prokinetic agent with good efficacy and at the same time favourable tolerability profile is the need of the hour in the treatment of dyspepsia. Itopride hydrochloride, the new benzamide has recently gained much favour as a gastrokinetic agent due to several reasons such as dual mode of action, lack of significant drug interactions at the level of cytochrome P450 and a better safety profile[4].

Several non-cardiac drugs may prolong cardiac repolarisation (hence, the QT interval of the surface electrocardiogram) to such a degree that potentially life threatening ventricular arrhythmias (e.g. torsades de pointes) may occur especially in case of overdosage or pharmacokinetic interaction. Different classes of non-cardiac drugs reported to prolong the QT interval include histamine H_1-receptor antagonists, antipsychotics, antidepressants, macrolides, fluoroquinolones and prokinetic agents etc., Among prokinetic drugs, Cisapride usage has already been restricted and the cardiac safety of Mosapride has also been questioned in few studies,,. Since Itopride belongs to the same benzamide group as Cisapride and Mosapride, it becomes mandatory to evaluate its cardiac safety profile. With this aim, the present study was undertaken to see the effect of Itopride on QT interval in adult healthy volunteers.

Material & Methods:

A randomized, placebo controlled, double blind, crossover study was conducted in the postgraduate department of pharmacology and therapeutics, Govt. Medical College, Jammu. Subjects were non smoking volunteers, judged healthy on the basis of medical history, physical examination, routine laboratory investigations and 12 lead electrocardiogram (ECG). They were not allowed to take any drug other than

Key words: *Prokinetic agents, Itopride, ECG, QT interval*

study drugs one week before inclusion and throughout the duration of their participation in the study. Written informed consent was taken from each volunteer for participation in the study and the protocol was approved by the local ethics committee.

During the study, 10 subjects (all males) in the age group of 18.5-22 years (20.45 ± 0.95) were given Itopride hydrochloride (Ganaton; Abbott India Ltd.) in the oral doses of 50 mg three times a day for one day and placebo (Glucose D) one capsule three times a day for one day separated by a washout phase of one week.

Procedure:

ECGs were recorded by a digital ECG Cardiomin 2k UNI-EM device. The subjects were allowed to rest for 10 minutes in the supine position in a quiet room. Several ECG recordings (minimum three)were obtained before and after administering the test drug . The placement of leads was the same for each recording and the same ECG machine was used for each subject. All ECG recordings were made simultaneously in 12- leads at a paper speed of 25 mm/sec (amplitude 1 mv = 10 mm) with the use of automatic recording mode. To avoid inter- reader variability all electrocardiographs were read by the same investigator who was blinded to the treatment assignment after all test periods were completed. The ECGs were analyzed by calculating RR and QT intervals. All the ECG recordings were carried out with lead II.However, occasionally another appropriate lead was selected if lead II was inadequate. The QT interval was measured from the onset of QRS complex to the end of T wave. In case of a prominent U wave, the dip or notch between the T and U wave was taken as the end of T wave[7]. QT interval after measurement was standardized by converting it to QTc i.e corrected QT interval. Because the QT interval is influenced by change in heart rate, it is customary to correct the interval to such changes (QTc). Various techniques are available for this purpose but the formula most widely used is Bazett's formula which is as follows[8].

$$QTc = \frac{\text{QT interval}}{\sqrt{\text{R-R interval}}}$$

QT interval and RR interval were measured in seconds and QTc was expressed in seconds. The normal QTc interval was taken as = 0.44 seconds[9]. The average of 3 sequential QTc values was used as a single QTc value for statistical evaluation. QTc interval and absolute changes in the QTc intervals after drug therapy or placebo administration (QTc post treatment-QTc base line) were calculated.

Statistical analysis

The statistical significance between the baseline and post drug QTc interval values for individual drug was analyzed with the help of the 2 tailed paired t test. Unpaired t test was used for comparing the post drug QTc interval values of Itopride and placebo.

Results :

All the 10 male healthy volunteers enrolled, completed the study and there were no dropouts. Treatment wise, all the 10 volunteers were assigned to receive Itopride and then placebo after a washout period of 7 days. The demographic and baseline data of these volunteers are given in table 1. The mean QTc interval values in the E.C.G at baseline and after the drug therapy are depicted in table 2. With regard to mean data, one day after oral administration of either Itopride or placebo, no significant change in the duration of repolarization was observed (Fig 1). When mean QTc interval with Itopride were compared with placebo, the results were comparable and statistically insignificant (P<0.78, two tailed unpaired t test).

Discussion

Itopride hydrochloride is a novel prokinetic drug which was introduced in India in 2002. It has been approved for the symptomatic treatment of disorders like non-ulcer dyspepsia, chronic gastritis, diabetic gastroparesis or functional dyspepsia[10] . This drug was first developed by Hokuriku Seiyaker Co. Ltd. and has been marketed in Japan since September 1995[11].Itopride is unique and different from the available prokinetics because of its dual mode of action[12,13,14] and lack of significant drug interaction[15]. Itopride, by virtue of its dopamine D2 receptor antagonism, removes the inhibitory effects on acetylcholine release. It also inhibits the enzyme acetylcholine sterase which prevents the degradation of acetylcholine[13,16]. The net effect is an increase in acetylcholine concentration, which in turn, promotes gastric motility, increases the lower esophageal sphincter pressure, acclerates gastric emptying and improves gastro-duodenal coordination. Following the restriction imposed on cisapride usage[17] and the subsequent report of the arrhythmic potential of mosapride[18] safety of a prokinetic drug has been a cause of concern. Therefore, there is need of a prokinetic agent that is not only effective but at the same time without serious side effects. Itopride may prove to be an alternative in this situation. As there is little data showing the effect of Itopride on cardiotoxicity, the present study was conducted to evaluate the effects of this drug on ECG.

Table 1: Demographic & Baseline Data of volunteers.

Parameters	**Observations**
Number of volunteers(n)	=10
Age (yrs) Mean±SD	=20.4±0.95
Male	=10
Body wt. in kgs(Mean±SD)	=62.1±6.02
History of ulcergenic drugs	=0

In our study, there was no significant change in the QTc interval after administration of Itopride (Table-2). The results with Itopride were comparable with those shown with placebo (fig 1).

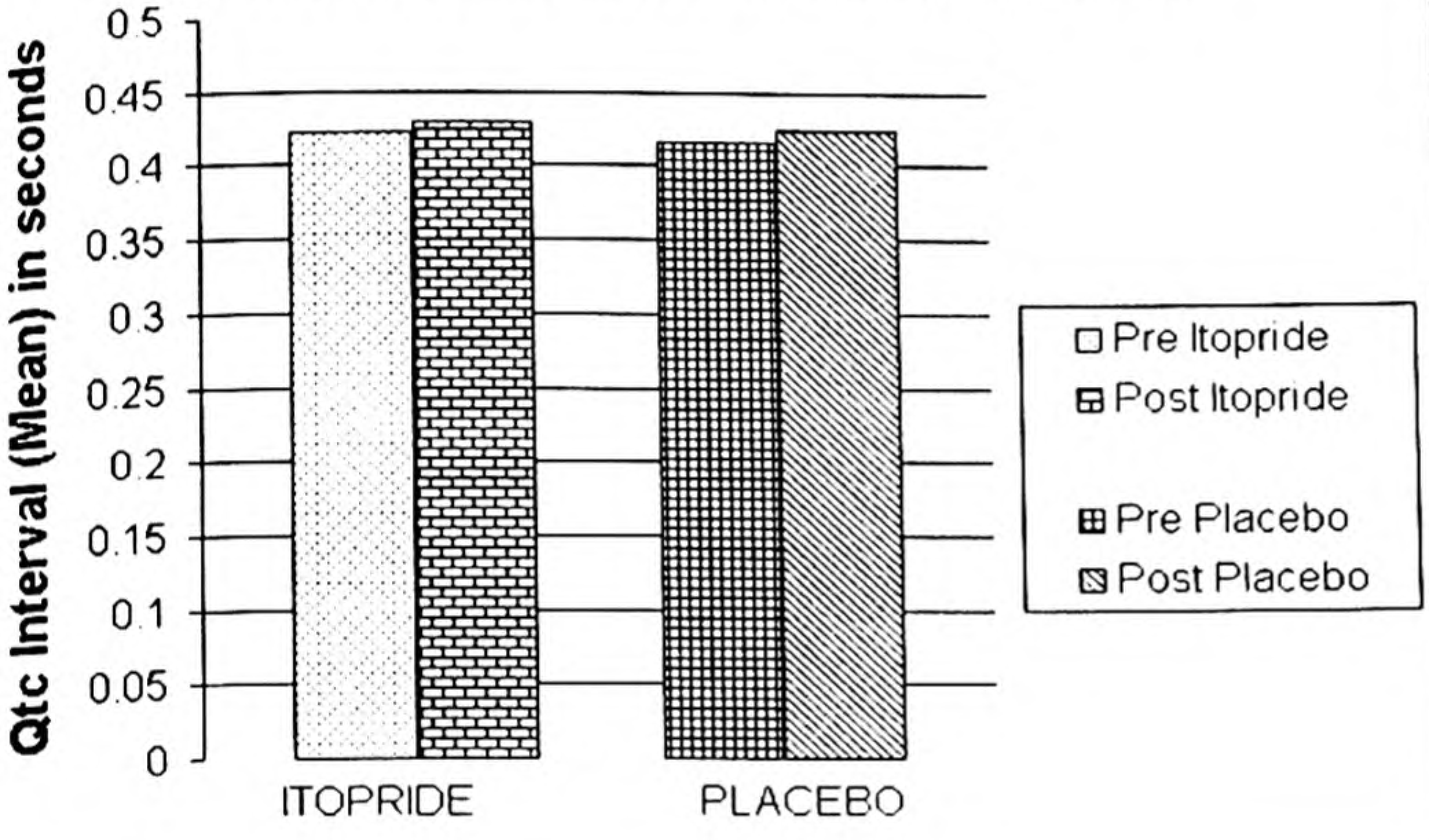
Our findings are consistent with those of Sawant et al (2000) who have reported no adverse effect of Itopride on QT interval in a randomized controlled open-label comparative trial of Itopride and Domperidone undertaken in patients with non ulcer dyspepsia/ chronic gastritis.[18] Kamath et al(2003)[15] in a single blind randomized study who compared the efficacy and tolerability of Itopride hydrochloride and Metoclopramide in patients of NUD have also shown that none of the patients had abnormalities on ECG after treatment. Various other preclinical and clinical studies too indicate that this drug is devoid of potential to cause prolongation of QT intervals unlike Cisapride and Mosapride [6,17,19,20]. In a post marketing

Table 2

	No. of Volunteers	Baseline QTc (sec)	Postdrug QTc(sec)	Change from baseline QTc	P-value
Itopride	10	0.422	0.43	0.008	0.49
Placebo	10	0.416	0.425	0.009	0.41

surveillance study of Itopride hydrochloride in a dose more than 50 mg 3 times a day for 2 weeks. 3741 patients enrolled by 918 doctors were evaluated and it was concluded that it is an effective and well tolerated drug in the management of functional dyspepsia and dyspepsia in GERD and diabetic patients. In this study none of the patients reported any cardiovascular event[20]. Reckakrani AL et al in open label non-comparative study in patients with NUD & chronic Gastritis have also shown that itopride has excellent tolerability and none of the patients had any prolongation of QT interval on ECG[21].

Fig 1:
Effect of Itopride & Placebo on Cardiac QTc Interval



Itopride is unlikely to cause cardiac arrhythmias or ECG changes in part to the lack of significant interaction and metabolism via the P450 CYP 3 A4 enzyme pathway unlike Cisapride and Mosapride as it is metabolized by the flavin mono oxygenase enzyme[3]. Molecular studies on guinea-pig ventricular myocytes have supported the cardiac safety profile of Itopride as it did not affect the delayed rectifier K+ current {I(K)}, blockade of which has a proarrhythmic effect[22]. Moreover, the new benzamide, itopride has no affinity for the 5HT4 receptors unlike other benzamides like Cisapride and Mosapride which are 5H T_4 agonists. The affinity of Cisapride for 5H T_4 receptors in the heart has been implicated in the undesirable cardiac effects of this drug,

Conclusion :

The present study revealed that Itopride is devoid of any abnormal effect on QT interval in 12 lead ECG. So it could be considered as a better and safer prokinetic agent and a welcome addition to the drug armamentarium for the symptomatic treatment of non-ulcer dyspepsia and other gastric motility disorders.

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Hepatoprotective studies on *Phyllanthus Niruri* on Paracetamol Induced Liver cell Damage in Albino Mice.

Nahid Tabassum, Sushma Chattervedi, S. S Aggrawal, Nissar Ahmed.

Abstract

Single overdose of Paracetamol (500mg/kg) produced hepatotoxicity in mice as evidenced by degenerative changes, focal necrosis and sinusoidal dilatation. Dried 50% alcoholic extract of Phyllanthus nirurital (P.N) and mixture of lignans isolated from P.N were screened for their hepatoprotective activity.

Biochemical & Histopathological studies conducted on extracts of P.N, commonly known as Jaramla in Hindi, and mixture of lignans, isolated from the petroleum ether extract of Phyllanthus niruri leaves, has got hepatoprotective effects in paracetamol induced liver damage. Regenerative changes, presence of binucleated cells, anisonucleosis and anisocytosis were seen in the drug treated groups.

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Introduction

A number of reports indicate that overdose of paracetamol can produce centrizonal hemorrhagic hepatic necrosis in humans and experimental animals[1,2].Modern medical science does not have, at present, a therapeutic agent which could cure the different liver disorders .In fact, the available remedies are from the traditional system of medicine. Paracetamol has thus been taken as test model to screen the anti-hepatotoxic activity of indigenous drugs. *Phyllanthus niruri* (Fam. Euphorbiacea) is a component of marketed hepatoprotective combination, Liv-52[3] It has been claimed to be an excellent remedy for jaundice [4] and infective hepatitis[5]. Dixit and Achar[6] have also reported it to be effective in jaundice of children. Vishweshwaran et.al,[7] have shown that 50% ethanolic extract of PN leaves have hepatoprotective action against carbon tetrachloride induced(Ccl_4) hepatotoxicity in rabbits. Agrawal et.al[8] have reported the hepatoprotective activity of ethanolic extract of roots and leaves of PN against alcohol induced liver cell injury in partially hepatectomised and non-hepatectomized rats. In-vitro study of phyllanthin, hypophyllanthin and tricotanol isolated from hexane extract of PN on Ccl_4 and galactosamine induced cytotoxicity in primary cultured rat hepatocytes has shown encouraging results [9]. However, no in-vivo study has been done on mixture of lignans so far .The present paper deals with the hepatoprotective activity of 50% alcoholic extracts of PN and mixture of lignans, isolated from PN, on paracetamol induced liver cell damage.

Experimental method

Leaves of *Phyllanthus niruri* (PN) were extracted with petroleum ether and 50% ethanol by cold maceration process as described in I.P [10]. Healthy albino mice (20-35g) of either sex were housed under uniform animal husbandry conditions and were fed with standard animal feed (Lipton's India Ltd) and water ad–libitum. Animals were divided into different groups of 8 mice each. Group I served as vehicle control and received 1% gum acacia suspension. Group II received a single oral dose of paracetamol, as a super saturated solution in 0.9 % saline at the rate of 500mg/kg body weight. Group III received 2.0 ml /100g b.w of Liv-52 syrup orally with paracetamol. 48 hours after administration of paracetamol, IV & V groups received PN extract (100 mg/ 100g/day) and mixture of lignans of PN (50mg /100g /day) for five consecutive days. 24 hours after the administration of last dose of drugs, blood was withdrawn from the mice and the serum was subjected to serum glutamic pyruvic transaminase (SGPT) estimation[11]. The mice were sacrificed; their livers were exised, washed thoroughly with water and preserved in formalin for histopathological studies using Haematoxylin-eosin stain.

***Key words**: Paracetamol, Liv-52, Phyllanthus niruri, hepatoprotective activity.*

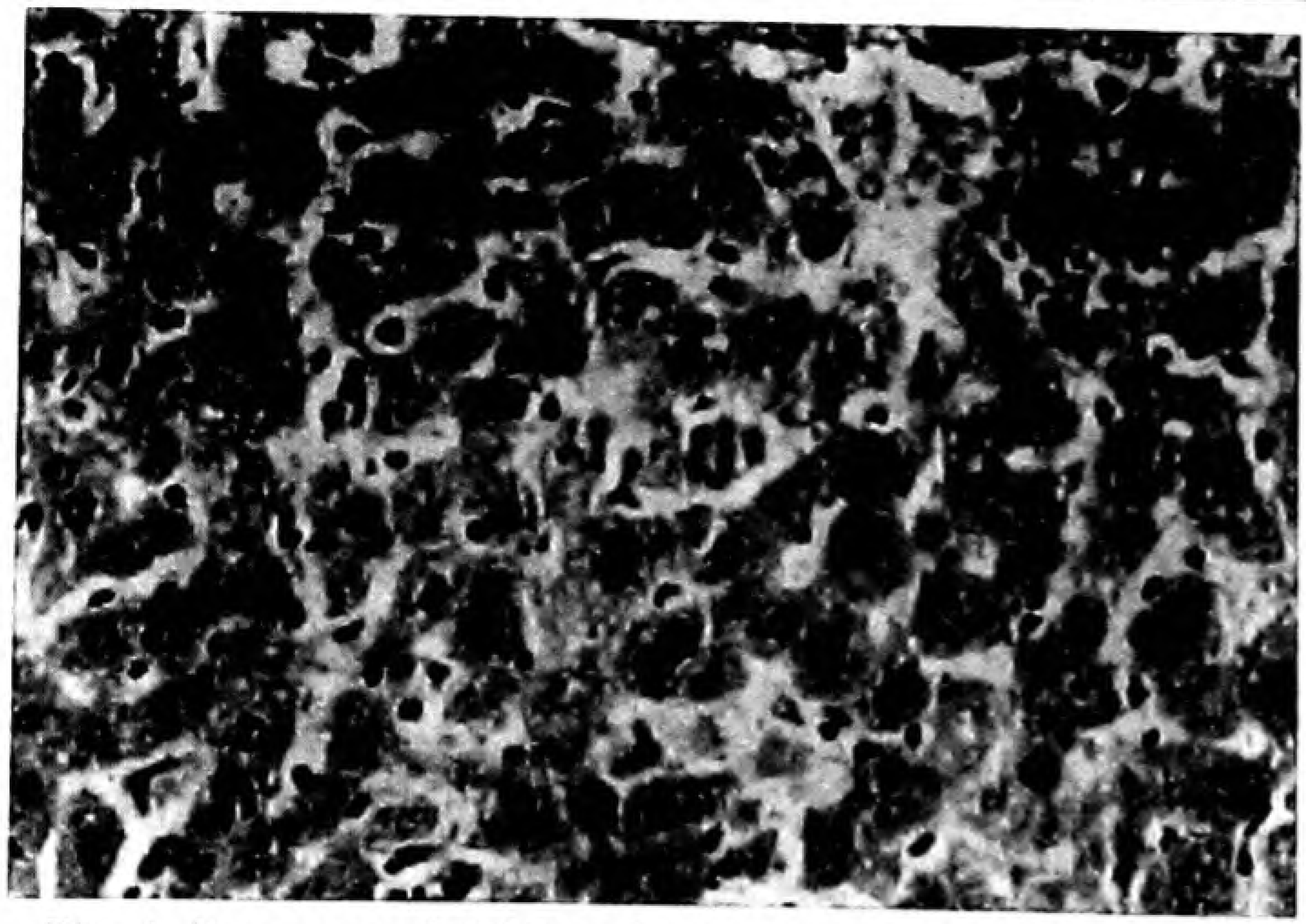

Fig :1. Paracetamol (500mg/kg b.w. single dose P.O) + 50% ethanolic extract of *Phyllantus nirui* (100mg/100g/day) Binucleated cells (HxEx400)

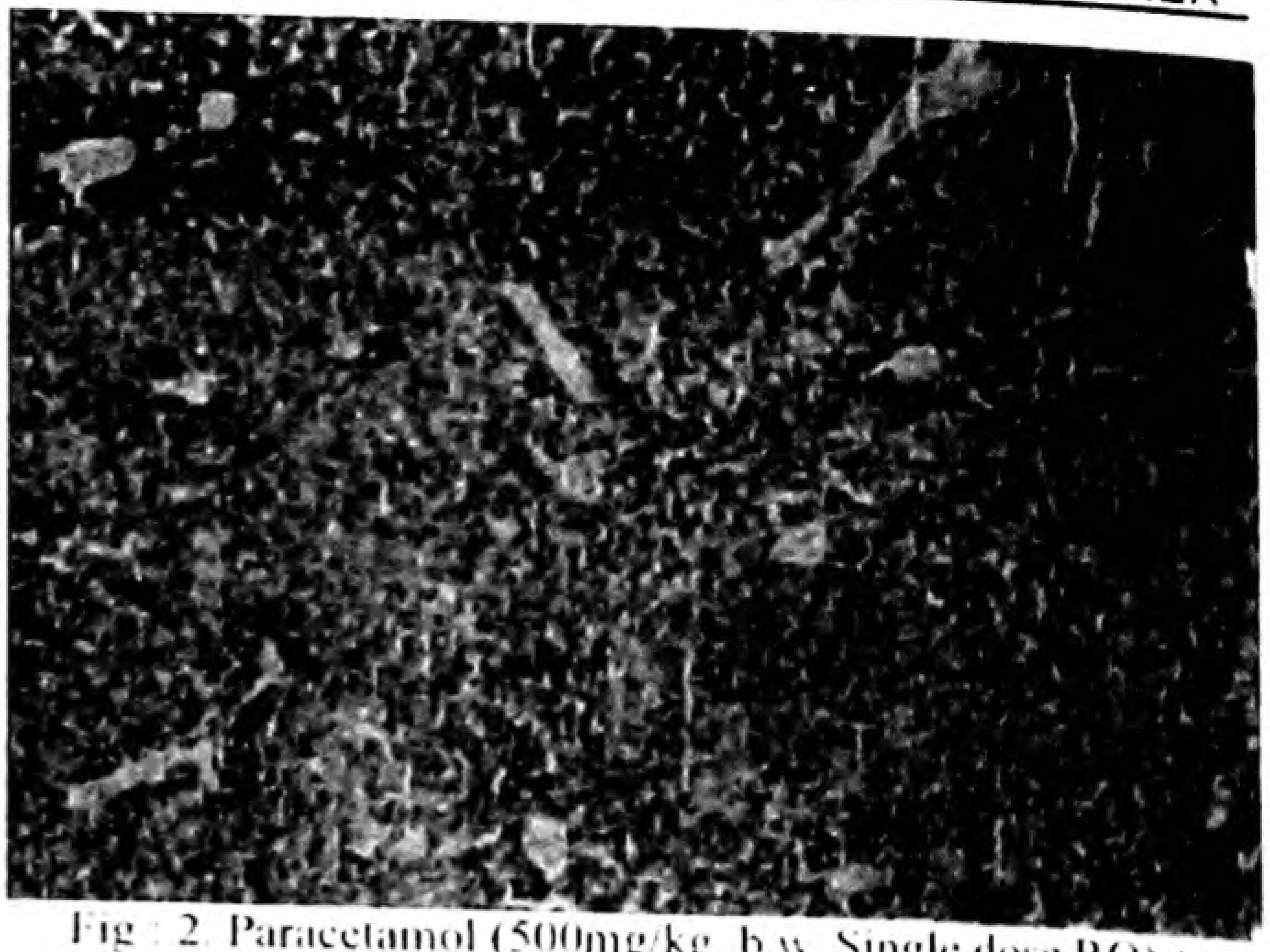

Fig : 2. Paracetamol (500mg/kg. b.w. Single dose P.O) + Mixture of phyllantin and hypophyllantin (500mg kg/day) Binucleated cells and Anisomucleosis (HxEx400)

Results

The SGPT levels were found to be significantly increased by paracetamol administration in mice of Group II. Large areas of necrosis surrounded in focal distribution, lymphocytes & lot of hamosiderin pigment were observed in 67% of animals on Histopathological examination.

Binucleated cells & anisonucleosis were observed in the mice treated with P.N extract & mixture of Phylanthin and Hypophyllanthin after single dose of Paracetamol administration. (Fig I).

Biochemical studies in mice treated with Liv-52 after paracetamol treatment showed significant reduction in SGPT levels. Histopathological studies revealed binucleated cells and regenerative activity in 80% livers of mice of this group (Fig II)

Discussion

Paracetamol induced hepatic liver cell damage was studied in mice as its toxicity is maximum in mice[12]. The animals became very weak and their body wt reduced considerably during one week experimental study. However, with the drugs

(P.N and mixture of lignans from P.N) there was no reduction in the body weights and food consumption. Animals looked healthy. SGPT was taken as an index for biochemical estimation as it is more abundant in liver cells than in any other cells in body[11]. Biochemical and histopathological studies revealed that paracetamol in a single oral dose of 500mg/kg body weight is hepatotoxic in mice. Extract of P.N leaves at a dose of 100mg/100g body weight has revealed hepatoprotective activity as is obvious from biochemical & histopathological studies. Moderate hepatoprotective activity was revealed in mice treated with mixture of lignans of P.N at the dose of 50mg/kg body weight.

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Hypotensive Potential of Aqueous Extract of *Emblica Officinalis* On Anaesthetized Dogs

Geer Mohammad Ishaq, S. Zia-ul-Arifeen, B. Dilawer Ahmad, G. Moinuddin, Anees Ahmad K, Kshama Devi

Abstract

Effect of aqeuous extract of dried fruits of *Emblica officinalis* (AE) on the mean arterial blood pressure (MABP), heart rate (HR) and respiratory rate (RR) of the anaesthetized male dogs when given alone and in combination with various agonists as well as antagonists was studied. AE showed a biphasic response on MABP with a slight initial increase of short duration, followed by a prominent decrease of longer duration. An increase in the rate and depth of respiration was also seen. HR was decreased. Response due to carotid occlusion (C.O) was not altered but the response due to vagal stimulation (V.S) was enhanced by AE. AE potentiated the effects of histamine and acetylcholine. Initial increase in MABP was not blocked by Prazocin, neither was the subsequent decrease blocked by propranolol. However both pheniramine and atropine reduced the magnitude of decrease in MABP due to AE to some extent. Observations suggest a synergistic cholinergic as well as histaminergic effect of AE on MABP and HR of anaesthetized dogs thus revealing its hypotensive potential.

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INTRODUCTION

Emblica officinalis Gaertn. (*Phyllanthus emblica* L.) (Family:Euphorbiaceae), popularly known as Amla is a common household remedy that finds use in Indian indigenous system of medicine against several ailments. Its fruits have been reported to possess expectorant, purgative, spasmolytic, antibacterial, hypoglycemic[1-2] hepatoprotective[3-4] and hypolipidemic[5] activity. The aqueous extract has been reported to have antypyretic, laxative and tonic properties and also showed anti-bacterial activity[6]. There are not many reports on cardiovascular effects of *Emblica officinalis* except that it has been reported to produce cytoprotective effects against oxidative damage by augmenting endogenous antioxidants and protecting rat heart against oxidative stress associated with ischemic reperfusion injury.[7-9] Its fruits contain tannins and vitamin C-like substance in abundance. Their chemical constituents include gallic acid, ellagic acid, phyllantidine, phyllantine, punigluconin, pedunculagin and some flavonoids.[10-12]

Experimentally, ethanolic fruit extract of Amla has been reported to possess slight stimulant action on isolated frog heart and has been seen to potentiate the action of adrenaline both in-vivo and in-vitro. It was seen to cause potentiation of adrenergic action on the blood pressure of anaesthetized cat.[12] However in the present study, apart from a slight potentiation of the blood pressure as reported earlier, we also recorded a more prominent and prolonged decrease in MABP of anaesthetized dogs with AE. This prolonged decrease was produced soon after the slight initial increase of short duration. Since this fall in MABP has not been reported or studied earlier, our objective was to explore the possible mechanism underlying this fall in MABP due to AE.

MATERIAL AND METHODS

Dried fruits of *Emblica officinalis* obtained from M/s Indian Herbs (Natural Remedies), Bangalore were powdered. Powdered fruits weighing 100 gms were soaked overnight in one liter of distilled water. On the next day, supernatant liquid was double filtered and evaluated for its effects on male anaesthetized dogs.

Three healthy male dogs weighing between 10-12 Kgs were procured from an NGO named CUPA (Compassion Unlimited Plus Action), Bangalore and quarantined for five days before experimentation in the

Key Words: *Emblica officinalis, hypotensive, cholinergic, histaminergic, anaesthetized dogs*

departmental dog kennel under standard laboratory conditions for the purpose of acclimatization and were maintained on standard diet. Food and water was withdrawn twelve hours before experimentation. Consent of the Institutional Animal Ethics Committee was obtained prior to the experimentation.

On the day of experimentation, they were anaesthetized using pentobarbitone in a dose of 45 mg/kg body weight and were dissected as per the conventional procedure. Trachea, femoral vein and carotid artery of the dogs were cannulated and the effects of AE on MABP, HR and RR were studied in the following sequence:

1. Effect of AE alone (dose = 4ml)
2. Effect of AE on carotid occlusion (30 seconds) and vagal stimulation (20 cycles per second for 3 seconds)
3. Effect of AE in combination with various agonists (dose = 3 mcg/kg) viz., adrenaline, acetylcholine, histamine and isoprenaline.
4. Effect of various antagonists (dose = 1 mg/kg) viz., pheniramine, prazocin, propranolol and atropine on the effect produced by AE.

After completion of the experimentation, dogs were euthanized in the prescribed manner using a saturated solution of magnesium sulphate intravenously in the anaesthetized state of the animals.

TABLE 1 Effect of AE on MABP, HR and RR of anaesthetized male dogs

S. No.	Treatment	Mean Arterial Blood Pressure (MABP-mm of Hg)	Respiratory Rate (RR-per minute)	Heart Rate (HR-per min.)
1.	Normal	162	14	136
2.	Vagal Stimulation (3 sec)	128	08	94
3.	Acetylcholine (3mcg/kg)	136	10	112
4.	Carotid Occlusion (30sec)	184	20	186
5.	Adrenaline (3mcg/kg)			
	alpha-effect	176	18	172
	beta-effect	158	14	132
6.	AE (4ml)			
	increase	168	16	138
	decrease	142	12	116
7.	AE + Adrenaline	178	20	178
8.	AE + Carotid Occlusion	192	24	194
9.	AE + Acetylcholine	128	08	104
10.	AE + Vagal Stimulation	122	08	86
11.	Histamine	142	12	142
12.	AE + Histamine	134	12	140
13.	Isoprenaline	130	36	148
14.	AE + Isoprenaline	136	36	148
15.	AE + Propranolol	140	12	116
16.	AE + Pheniramine	154	12	128
17.	AE + Atropine	156	14	132

RESULTS

AE showed a biphasic response on MABP of anaesthetized male dogs with a slight initial increase of short duration immediately followed by a more prominent decrease of longer duration. AE also showed a slight increase in both rate and depth of respiration. HR initially increased a little but was followed by a more conspicuous decrease. AE did not alter the response due to C.O, however there was an enhancement in response due to V.S. AE potentiated the alpha-action of adrenaline but the initial increase in MABP due to AE was not blocked by prazocin neither was the subsequent decrease blocked by propranolol.

AE potentiated the depressor actions of histamine. Anti-histaminic drug, pheniramine when given in combination with AE reduced the magnitude of decrease in MABP due to AE but did not completely block the same. Similar effects were observed with cholinergic system. AE potentiated the depressor actions of acetylcholine and when given in combination with atropine, partial blockade of AE effect was recorded. All the above responses were found to be identical as well as reproducible on all the three dogs used for the study (Table 1, Figure 1)

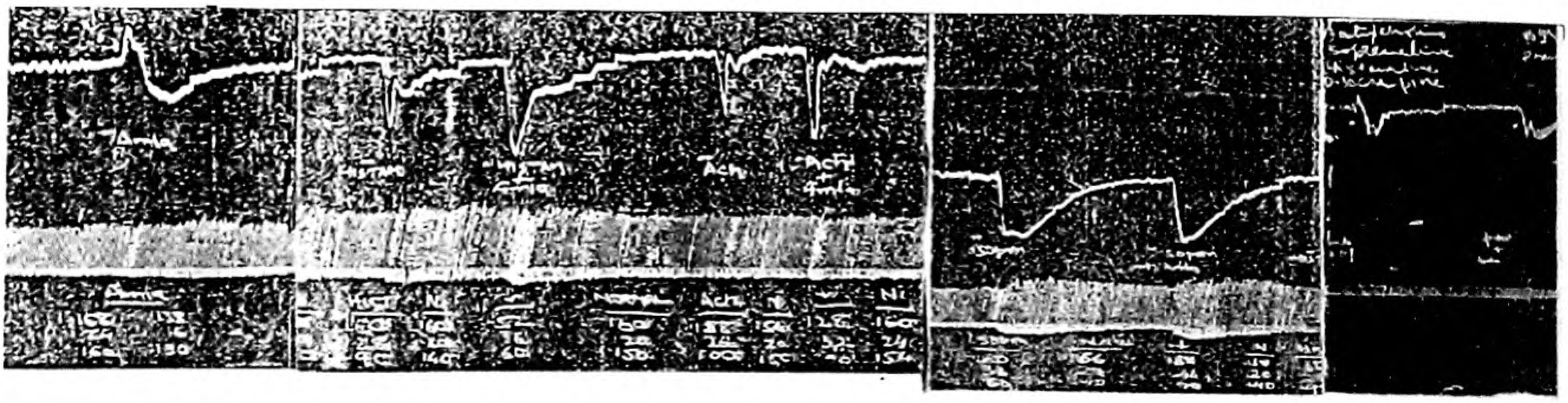

Fig. 1 Effect of AE alone and in presence of Ach,Hist, Isoprenaline and Propranol.

DISCUSSION

The initial slight increase in MABP by AE might not be mediated through alpha adrengergic-receptor action since it was not blocked by prazocin. However the potentiation of alpha-receptor action of adrenaline by AE could be because of its adrenergic receptor-independent synergistic effect that has to be studied further after purification of its active components. Nevertheless, Rao and Siddiqui (1964) have also inferred that the adrenergic potentiating activity of Amla could be because of its anti-oxidant effect rather than alpha-agonistic effect. One more noteworthy fact is that such potentiation of actions of adrenaline by the fruit extract of *Emblica officinalis* does not conform to its hypoglycemic and hypolipidimic effects reported later since adrenergic stimulation results into hyperglycemia and hyperlipidemia[11].

Likewise the subsequent, prolonged and more prominent decrease in MABP and HR could not be mediated by beta adrenergic-receptor action since it was not blocked by propranolol. This is further evidenced by the fact that there is no increase in the response due to isoprenaline when given in combination with AE. Decrease in MABP due to AE might not be mediated through adrenergic neurones, since response obtained on C.O was not altered by AE.

Potentiation of actions of acetylcholine on MABP, HR as well as rate and depth of respiration can be attributed to the synergistic cholinergic effect of AE, since atropine reduced the magnitude of decrease in MABP due to AE. Enhancement of response due to V.S when recorded in presence of AE supports this claim. Similarly the potentiation of actions of histamine on MABP, HR as well as rate and depth of respiration can also be attributed to the synergistic histaminergic effect of AE, since pheniramine reduced the magnitude of decrease in MABP due to AE. The fact that either atropine or pheniramine alone could not completely block the depressant action of AE on MABP and HR supports the claim that AE has both cholinergic as well as histaminergic effects on MABP, HR and RR of anaesthetized dogs.

CONCLUSION

In the present study, aqueous extract (AE) of the fruits of *Emblica officinalis* has produced a marked hypotensive effect and shown a synergistic cholinergic and synergistic histaminergic effect on MABP, HR and RR of anaesthetized male dogs. However the mechanism behind initial slight increase in MABP and that of the potentiation of alpha-effect of adrenaline by AE is not clear and therefore needs further evaluation after fractional isolation of the various active constituents of AE.

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[illegible]

this enigmatic disorder?

[illegible]

a discernible pattern in the frequently observed pathological findings and the possibility that deviations are either artifactual in nature or a consequence rather than a cause. Despite above limitations, current understanding of biology of schizophrenia can be summarized as follows:

Neuroanatomy:

Mainly three brain areas have been implicated for pathology of schizophrenia. (1)*Striatum and Nucleus accumbens:* Hyperdopaminergic state is implicated for cause of schizophrenia and increase in D receptors has been found in same areas of brain in postmortum studies of schizophrenia, but in vivo neuroimaging evidence is not very clear for involvement of these brain areas in schizophrenia. (2) *Hippocampus and Entorhinal cortex:* these have been found smaller in size in patients with schizophrenia as compared to normal controls. Microscopic findings reveal disorganization of hippocampal pyramidal neurons and glomeruli cells in entorhinal cortex. (3) *Dorsolateral prefrontal cortex:* Decreased thickness and decreased blood flow in this area in patients of schizophrenia lead to the concept of hypofrontality in schizophrenia.

Neurochemistry:

Various neurotransmitters have been implicated in pathogenesis of schizophrenia. Increased dopamine in striatum is found to be correlated with positive symptoms of schizophrenia, whereas hypodopaminergic state in prefrontal region is associated with negative and cognitive symptoms. Efficacy of atypical antipsychotics (domapine-serotanin inhibitors) in schizophrenia indicates the role of serotonin. Serotonin does also modulate the dopaminergic and GABAergic neurotransmission, which is turn have role in schizophrenia. Hypofunctioning NMDA receptors in Schizophrenia point towards the role of glutamate in schizophrenia. Recently decrease in GABAergic neurotransmission has been found in patients suffering with schizophrenia.

Other than structural and chemical disturbances, problems of neural connectivity have also been found in schizophrenia, which is evidenced by abnormal neural circuits, reduced neuropil (parasynaptic space) in prefrontal cortex and reduced synaptophysin (presynaptic protein) in patients with schizophrenia.

MECHANISM OF CHRONICITY IN DIFFERENT DOMAINS OF SCHIZOPHRENIA:

(1) Positive Symptoms : Kapur (2003) postulated that psychotic symptoms persist although the course of schizophrenia may keep on changing and it is the dopamine which acts as the "wind of the psychotic fire". When a patient's symptoms are in "remission" with anti-psychotic treatment, the delusions and hallucinations are not erased but recede to the background of consciousness. The resurgence of an abnormally heightened dopaminergic state reinvests these errant symptoms with salience, making them clinically relevant again.

(2) Negative symptoms: Multiple etiologies have been given for chronicity of negative symptoms in schizophrenia. These include negative symptoms secondary to positive symptoms, environmental deprivation, extrapyramidal symptoms and associated depression. There may be primary negative symptoms in schizophrenia for which various pathophysiological mechanisms have been postulated viz. prefrontal cortical dysfunctions, increased cholinergic activity, increased dopamine and increased 5 HT (serotonergic) activity in various areas of the brain.

(3) Cognitive Symptoms: Alzheimer's disease and other related pathology does occur in schizophrenia. Though it does not occur that frequently as in a community-based sample of subjects matched to the cohort of schizophrenia. Both noradrenergic and serotonergic deficits have been found in elderly cognitively impaired subjects with schizophrenia. Serotonergic deficit occurring in frontal and temporal cortex and noradrenergic deficits apparently restricted to frontal cortex.

CHRONICITY IN SCHIZOPHRENIA: VARIOUS MODELS

Neurodegenerative Model:

Since the time of Kraepelin, schizophrenia was taken as a degenerative disorder named "dementia precox". Chronic deteriorating course of schizophrenia with associated evidence of structural brain changes were taken as evidence of degenerative process. The observation that there is a brain volume decrement over time and that the rate of change is higher during the first 5 years would be consistent with a neurodegenerative model of schizophrenia (Premkumar and Sharma, 2005). But, structural brain changes existing before the illness and absence of gliosis in structural brain lesions in schizophrenia point against the inflammatory and degenerative process of schizophrenia.

Neurodevelopmental Model:

As mentioned, presence of structural changes before onset of illness and absence of glosis made researchers to think that schizophrenia may be a type of neurodevelopmental disorder. Other evidences in favour of this model are increased frequency of minor physical abnormalities in these patients, association with prenatal viral exposure and obstetric complication, premorbid cognitive and neuromotor abnormalities and cyto-structural abnormalities found in brain of patients with schizophrenia. The major criticism of this model is that early, static and latent pathological deficits do not explain devastating course of schizophrenia.

Progressive Neurodevelopmental Model:

By combining the above two models, Woods (1998) gave progressive neurodevelopmental model for chronicity of schizophrenia. As per this model, Schizophrenia is taken as a progressive neurodevelopmental disorder like Rett's Syndrome and autism. All these three disorders show deterioration from previous level, leveling off rather than life long progression and absence of reactive gliosis. So schizophrenia is a process which begins prenatally, progresses until it reaches a critical threshold, causes progressive brain volume loss by apoptosis and slows down with age.

"Neo Bleulerian" Unitary Model

(Andreasen et al. 1999): As per this model, schizophrenia is a neurodevelopmental and cognitive disorder. Schizophrenia is a state of cognitive dysmetria where neural misconnections created by aberrant brain development lead in turn to fundamental cognitive deficit in a process that shapes all aspects of cognition, emotion and behaviour. Cortico-cerebellar-thalamic-cortical circuit is implicated for pathogenesis. Slewa-Younan (2004) found reduction in global frontal connectivity in chronic schizophrenia subjects relative to their matched healthy subjects.

THERAPEUTICS AND CHRONICITY IN SCHIZOPHRENIA:

Kapur and Ramington (2001) gave a linking model between pharmacology and chronic course of schizophrenia. Patients who are predisposed to have schizophrenia have cognitive and behavioural oddities premorbidly and to some extent dopamine dysregulations, cause of which may be environmental or genetic. Because of psychosocial stressors, positive symptoms get precipitated and secondary to which negative and cognitive symptoms may aggravate. If effective treatment is started at the beginning of illness, positive and secondary cognitive and negative symptoms can be controlled but primary cognitive and negative symptoms continue.

Effectiveness of atypical neuroleptics in treatment resistant schizophrenia produces insight in chronicity of schizophrenia. Loss of cholinergic interneurons has been implicated for treatment resistance in schizophrenia. Typical antipsychotics, which are D receptor blockers, have their antipsychotic effect when they ultimately block D receptors through cholinergic interneurons. This may be the reason that in chronic schizophrenia clozapine and other atypical antipsychotics are more effective as they act directly on D. receptors and do not require cholinergic interneurons.

PSYCHOSOCIAL VIEW OF CHRONICITY IN SCHIZOPHRENIA:

Stress and Chronicity in Schizophrenia:

Falloon (1982) categorized stressors in schizophrenia in to mainly two types - ambient stress i.e. persisting stress in the daily living situation and stressful life changes and events. If ambient stress is low then only major life events get to cross the threshold of relapse, and if ambient stress is high then even everyday life changes or minor life events lead to multiple and frequent relapses, thus maintaining the chronicity in schizophrenia.

Integrated Model of Chronicity in Schizophrenia:

Ciompi (1994) gave an integrated model including biological, psychosocial and premorbid factors to explain the chronic course of schizophrenia. Whereas several biological and psychosocial factors make patient vulnerable to schizophrenia premorbidly, unspecific stress precipitates acute psychotic decompensation. Further course of schizophrenia, from complete remission to severe chronicity, depends on various psychosocial factors.

CONCLUSION:

Whatever models have been described for chronicity of schizophrenia, they are models of schizophrenia itself. Chronicity is implied in the course of schizophrenia. None of the models for chronicity of schizophrenia is foolproof. Models are neither right nor wrong; they are more useful and less useful in as much that they help us to understand the continuous suffering of our patients.

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Automated Perimetry-- Interpreting the Data

Junaid. S. Wani, Mohd. Sajid Mir, A.R. Nasti

Visual field measurement is a critical component in the armament against potentially blinding diseases. The use in glaucoma is often discussed and well understood, however it has various other applications that render it useful in disease management and blindness prevention. These include the detection and/or management of conditions such as intraorbital lesions, afferent pupillary defect, papilledema, retinitis pigmentosa, cranial tumors and others.

Visual field measurement has undergone an evolution from the mechanical to the automated measurement process, resulting in greater accuracy, ease of use and greater depth of analysis.

The Humphreys visual field Analyser is most commonly used and will be the focus of this paper.

Concepts underlying Perimetry

Kinetic Perimetry

This technique is highly dependant on the operator efficiency as the examiner moves a target from an area where it is not visible to an area where it is visible. The target is of fixed size and brightness. The stimulus size, colour and brightness can be varied by the examiner. Threshold points are measured for each point tested and thereafter isopters are generated by connecting points of equal sensitivity. The disadvantages of this technique include the subjectivity, the reliance on examiner technique, the time consumed, the difficulties with randomising targets and patient cooperation. The measurement is approached in a horizontal manner as opposed to Static perimetry which utilises a vertical approach.

Static Perimetry

Discrete points along the island of vision or visual field are probed using a non-moving stimulus. The target is increased in brightness or size(usually brightness) until it is first seen by the patient, which indicates the threshold brightness for that point in the visual field.[1] This strategy allows for a quantitative measure of the relative density of a defect, more easily than in kinetic perimetry. More testing strategies are available when static perimetry utilises a projection system since there is greater variability in the resolution and the stimulus size can be varied more readily[1].

Terminology related to Perimetry

Hill or island of Vision. Traquair's apt comparison of the visual field to an island or hill of vision surrounded by a sea of blindness, depicts the visual field as a three-dimensional spatial model.[1,2] The contour of the island represents various levels of retinal sensitivity, the narrowest peak the fovea(greatest sensitivity) while the outer borders correspond to the least sensitive areas in the peripheral field[1].

Threshold

Threshold is defined as the dimmest target perceived by the patient at a given discrete point; psychophysicists define the term as the ability to perceive a stimulus 50% of the time[1]. The sensitivity of the eye varies from moment to moment and from day to day and this needs to be considered in the designing of visual field tests[3].

Isopter

A line within the visual field which connects points of equal sensitivity or threshold is defined as an isopter[2].

Brightness

Brightness is defined in terms of decibels(db) and apostibs (abs).

Decibels

Decibels can be thought of as a relative, logarithmetic, unit of change in stimulus brightness. A decibel is one-tenth of a log unit ie. 10

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decibels equals one log unit[1]. Useful in measuring retinal sensitivity loss or difference in retinal sensitivity. Data needs to be captured on the same instrument for comparisons to be made as different values are used by various manufacturers.

Apostilbs: Bowl and target brightness is measured in apostilbs. One apostilb equals one lumen per square meter and a healthy patient can perceive a stimulus of 1 abs in the macular area.1 Background illumination for the Goldmann, Dicon, and Humphreys

Fixation methods Fixation is central to the validity of a visual field. The ideal fixation device should move the stimuli with the movement of the eye, but at present this type of device is too costly to be practical[3].

The following strategies are employed to ensure adequate fixation:

- Video monitoring of the eye
- The manual method which requires constant supervision of the patient during the test.
- Video camera with contrast monitor which is an objective method of monitoring pupil contrast.
- Heijl-Krakau blind spot monitoring technique which provides and index of the quality of patient fixation during an examination by periodically exposing stimuli in the blind spot.3

Normal Visual Field The normal monocular visual field is a slightly irregular oval approximately 60 degrees inward(nasally) and upward(superiorly), 70 to 75 degrees downward(inferiorly) and up to 100 degrees outward(temporally)[2]. The visual field measurement can be affected by the patient's age, size and position of the nose and orbital structures, location of eye within the orbit, colour of stimuli, refractive error, fixation and eye movement, and patient cooperation and ease of operation of the instrument.

PRINCIPLES OF AUTOMATED VISUAL FIELD TESTING

Given the significant dominance of the Humphrey Visual Field Analyser(HFA) in clinical practice, these concepts will be discussed in relation to this instrument. The basic principles are similar for other instruments such as the Dicon and the Octopus.

Unlike Goldman Perimetry that uses different size stimuli, the HFA uses the size III(0.42;) target unless otherwise instructed[5]. The stimulus is varied in intensity from from 0.8 to 10 000 apostilb, a range of about 5 log units. The differential threshold is inversely related to the intensity of the stimulus and is recorded in decibels(dB)[5]. The background luminance is 31.5asb and the testing distance 33 cm.

Screening Strategies

For threshold related, two zone, three-zone and quantify defects the four primary points in each quandrant are thresholded[6]. The second most sensitive value is used to calculate the expected height of the hill of vision. This constitutes the central reference number which is used to then calculate the theoretical hill of vision. Targets are then presented 6d brighter than the theoretical hill of vision and if the point is not seen it is tested for a second time. Failure to detect the stimulus after it is presented for the second time will result in different strategies in the following approaches:

Two Zone Points are presented the 6dB above the theoretical hill of vision level. Printouts display circles for seen stimuli and solid squares for unseen stimuli.

Three-zone

Those points that are not detected after being presented twice at the 6dB above the theoretical hill of vision level, are retested at the brightest level which is 10 000 asb. If the target is seen a circle is displayed, "x's are indicated on the printout for a relative defect or a solid block if the target is not seen.

Quantify defects

The points missed twice at the 6dB brighter than the theoretical hill of vision level, are thresholded[3-4]. The depth of the defect is recorded relative to the expected threshold at that location. Printouts display circles for seen stimuli, and numbers for defects.

A value of 10dB means that the threshold is 10dB away from the theoretical hill of vision.

This is derived at by:

Expected Threshold- actual threshold

20dB - 10dB = 10dB

ANALYSIS OF THE PRINTOUT STATPAC

Statpac provides immediate expert system analysis of visual field test results. It analyses test results at the time of examination, stores test results and can be analysed later. With this analytic package, the clinician can examine visual fields from up to 10 visits and assess whether the patient is recovering or losing field. Statpac includes the following features[3-6]

- Using results from a single test it can point out suspicious areas that otherwise might not be evident until subsequent tests are done.
- Identify areas that look suspicious but which, in fact compare favourably with normals data.

Using results from a series of tests, Statpac provides a highly sensitive and informative analysis of changes in the patient's visual field over time.

1. Name, ID and Age

Ensure that this data is accurate. The correct age is essential as the patient is compared to age matched normals.

2. Type of Test

This indicates whether the test was a threshold or screening test. Screening tests are a fast effective method to detect suspect areas in the visual field and indicate the need for further evaluation.

Threshold tests determine the sensitivity at various points in the visual field and detect early changes in retinal sensitivity.

The following table indicates screening tests and the points tested.

Screening Test	Extent of Visual Field/Number of Points
Central 40	30 degrees/40 points
Central 76	30 degrees/76 points
Central Armaly	30 degrees/84 points
Peripheral 60	30 to 60 degrees/60 points
Nasal step	50 degrees/14 points
Armaly full field	50 degrees/98 points
Full Field 81	55 degrees/81 points
Full Field 120	55 degrees/120 points

If a 30-2 is indicated then this means that the central 30 degrees of the field is tested with 76 points tested.

The following table indicates the threshold tests and the points tested:

Threshold Test	Extent of Visual Field/Number of Points
10-2	10 degrees/68 point grid
24-2	24 degrees/54 point grid
30-2	30 degrees/76 point grid
60-4	30 to 60 degrees/60 points
Nasal Step	50 degrees/14 points

3.Strategy

The options are full threshold, Fastpac, SITA-standard and SITA-fast.

Full threshold is rarely indicated, since newer thresholding algorithms are equally as valid and much faster.[8] Fastpac is the most commonly used strategy. However with the newer Swedish Interactive Thresholding Algorithm(SITA), testing is even more rapid, yet validity is protected and possibly enhanced. SITA standard is twice as fast as full threshold and SITA-fast is twice as fast as SITA-Standard[8].

Full threshold

A bracketing technique is used to threshold each test point. The stimulus is presented at a level the patient is expected to see. If seen, the intensity is decreased in 4 decibel steps(0.4 log units) until the patient no longer sees stimulus.[3,6] If the stimulus is not seen the the instrument changes direction in 2dB steps until a change in patient response is made. The last stimulus seen is the threshold point for the patient.

FASTPAC

Fastpac decreases the threshold time by about 40%(Humphreys). It follows a similar stair-stepping technique as in Full Threshold, but uses 3dB increments instead of 4dB and crosses the threshold only once.

Swedish Interactive Thresholding Algorithm (SITA)

The Swedish interactive threshold algorithm (SITA) is a strategy that dramatically reduces test time. It is available as either SITA standard or SITA fast.

The SITA strategy was intended to gather the same information as a full threshold field in much less time by calculating expected thresholds and begin testing close to the actual threshold value.

SITA utilises an alternative strategy to the bracketing method. Two likelihood functions are calculated for each test location, one based on the assumption that the test location is glaucomatous and the other based on the assumption that the location is normal. The likelihood functions are updated as the examination progresses. The updating is informed by a combination of patient responses and internal models of normality and glaucoma. Once the likelihood functions reaches a predetermined level of accuracy thresholds are recalculated according to a model of the spatial interdependence between test locations and based on the recalculation of response windows from the responses obtained during the examination[9].

4.Rx Used

The clinician should ensure that the necessary calculations are made for the prescription needed. This can be done manually or the distance and near Rx entered and the field Analyser then calculates the necessary Rx.

Ensure that the correct lenses are placed in the lens holder and the holder is appropriately located. Should it be too far from the eye then a false defect could be induced which is often a circular area of lost field located peripherally.

Use Trial lenses only for central tests(within 30°), or the central part of a full field test. For Peripheral test > 30 degrees, remove the lenses[3,6].

5.Pupil Diameter

While large pupils do not affect the results significantly, miotic pupils can induce a defect. The pupil should be at least 3mm to avoid false defects.10 Ensure that the repeat test is conducted at the similar pupil diameter as the previous test.

6.Reliability Indices

Patient cooperation and response determines the value of the visual field. Unreliable responses are monitored by the HVF and key indicators of reliability flagged. Should they be flagged (usually with XX) then the visual field cannot be used to draw clinical conclusions as this indicates a statistically significant error rate.

The clinician should take the appropriate steps to ensure compliance and reliability of the field. These include:

- Clear and unambiguous instructions
- Ensuring that the patient is comfortable
- Providing a pause in the test if the patient is tired
- Constantly monitoring the patient and providing encouragement and support
- Utilise the video eye monitor to observe and correct the patient.

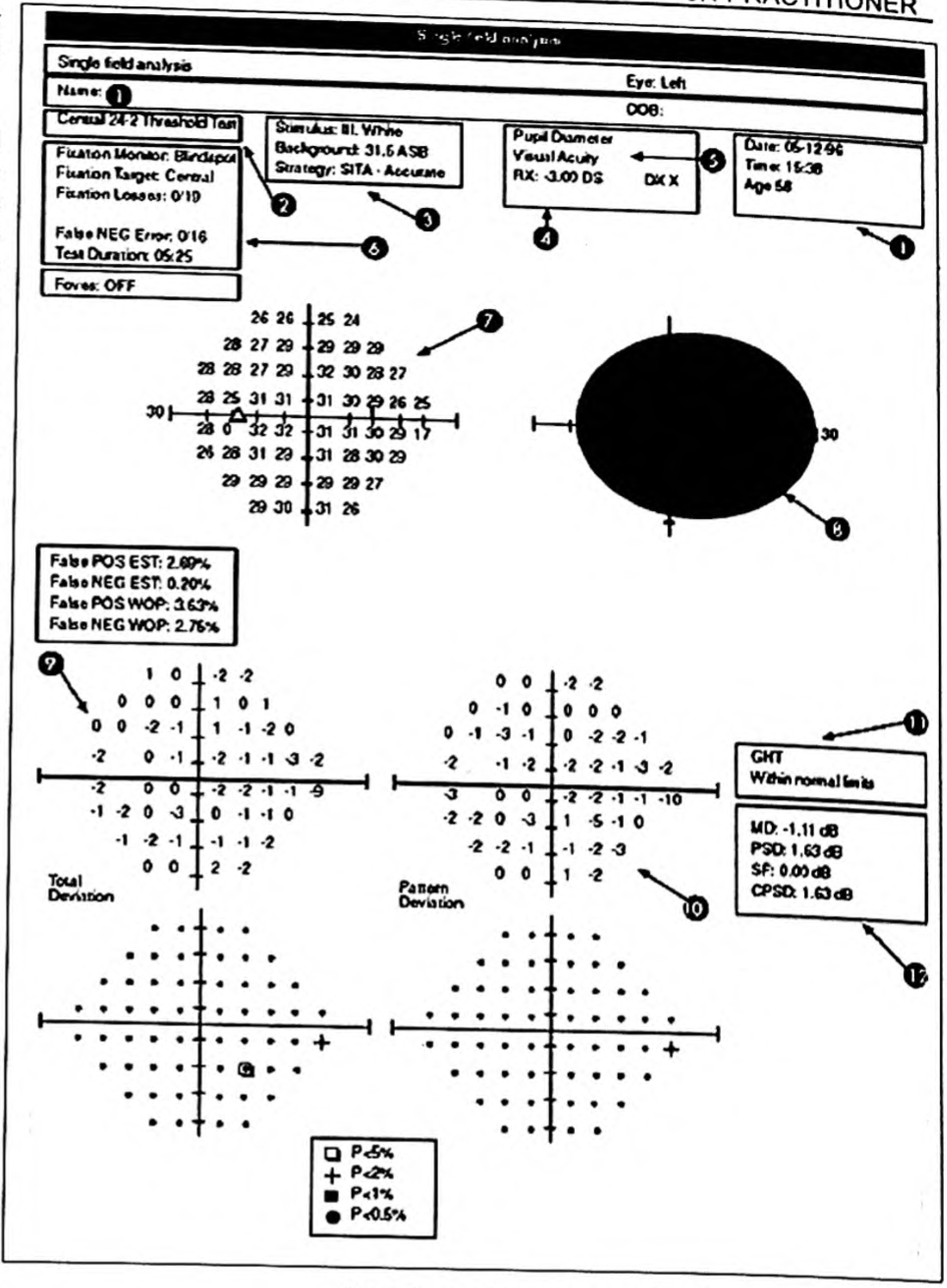
Key indices:

Fluctuation:

The fluctuation test is an option that can be used with any threshold test.6 The threshold is measured twice at 10 pre-selected points. A fluctuation value is then determined by using the difference between the first and the second readings and indicates how the reliability of the patients responses. Fluctuation values outside the normal limits are flagged with p values, eg. $P< 0.01$. Poor fluctuation values are a result of poor patient compliance or a sign of glaucomatous field loss.

Fixation losses:

This figure indicates whether the patient has maintained fixation on the fixation target. When the fixation monitoring test parameter is set to blind spot, a periodic checking of the blind spot area occurs during the test. This is done by projecting a stimulus in the blind spot area.[3,4,6] The patient should not respond when the stimulus is projected into the blind spot area. If the patient indicates seeing the blind spot then the machine records a fixation loss. A high



Single field analysis

Name:

Eye: Left

DOB:

Central 24-2 Threshold Test

Stimulus: III, White
Background: 31.5 ASB
Strategy: SITA - Accurate

Pupil Diameter
Visual Acuity
RX: -3.00 DS DC X

Date: 05-12-96
Time: 15:38
Age 58

Fixation Monitor: Blindspot
Fixation Target: Central
Fixation Losses: 0/10

False NEG Error: 0/16
Test Duration: 05:25

Fovea: OFF

False POS EST: 2.69%
False NEG EST: 0.20%
False POS WOP: 3.63%
False NEG WOP: 2.76%

GHT
Within normal limits

MD: -1.11 dB
PSD: 1.63 dB
SF: 0.00 dB
CPSD: 1.63 dB

fixation loss score is indicative of poor fixation or that the blind spot was not correctly mapped out.

The printout shows the total number of fixation losses followed by the total number of stimuli presented within the blind spot eg. 2 out of 15 will be presented as 2/10. If fixation losses exceed 20% of those presented and is 4/15 then XX will be printed next to the numbers.

Consider replotting the blind spot or reinstructing the patient if the machine beeps after two failures within 5 presentations at the blind spot.

False Positives

This indicates a response in the absence of a stimuli and occurs when the patient pushes the button in anticipation of stimuli or is just plain trigger happy and pushes the button prior to the stimulus presentation. During the test at least one false positive trial occurs for every 30 points presented. The scores are flagged if errors exceed 33% of the trials[3,6].

False Negatives

Occasionally the HVF projects a stimulus at 9dB brighter than was seen earlier in testing. If the error exceeds 33% of the brighter stimuli presented then the scores are flagged with XX[3,6]. If the patient misses the stimulus then it is recorded as one of the false positive errors. This may occur because of fatigue or lack of concentration or in the case of severe retinal disease.

7. The numeric data

This is data that expresses the patient's test responses in decibels. The statpac software data analyses this info and gives it age adjusted significance and it is then that this information is really relevant and worth drawing conclusions from.

8. The Grayscale

The grayscale is a colour scheme of the visual loss. It is useful to provide an overview of the visual field loss but cannot be relied on by the clinician to make a definitive diagnosis of the extent of the visual field loss. Patients find the scale useful in understanding the extent of the visual field loss and the risks that they face.

9. Total Deviation

This is a comparison of the patients responses with that of known normal patients of their age and a representation of this relationship both in numbers and probability plots[3,4,6].

10. Pattern Deviation

Certain condition e.g. cataracts cause a generalised depression of the field of view and could mask underlying defects such as subtle changes secondary to glaucoma. The pattern deviation factors out the generalised depression that is commonly seen with cataracts, miotic pupils or an incorrect testing lens. It presents the data via a numeric and probability plot. The darker the symbol in the probability plot the more significant the deviation from the normal threshold.

11. The Glaucoma Hemifield Test

The GHT is based on the fact that glaucoma usually causes asymmetric field loss and not a generalised global depression[10].

The glaucoma hemifield test (GHT) evaluates five zones in the superior field and compares these zones to their mirror image zones in the inferior field. The GHT evaluates the severity of disturbed points in each zone and prints one of three messages below the graytone format:

GHT within normal limits

Outside Normal limits
Borderline

The test is not available with tests using Fastpac.6

12. The Global Indices

The Statpac program makes calculations to assess the field results as a whole rather than the individual components. Four global indices are calculated. These include:

Mean Deviation(MD): weighted average of how much this patient's overall function deviates from that of age-matched normals. It is a general barometer of overall field depression[8]. A generalised depression causes a significant increase in the mean defect.[11] A significant mean deviation may indicate that the patient has an overall depression, or that there is significant loss in one part of the field and not in others.

Pattern Standard Deviation(PSD): Is a measurement of the degree to which the shape of the patient's measured field departs from the normal, age-corrected reference field.[3,6] A low PSD indicates a smooth hill of vision, a high PSD indicates an irregular hill. PSD characterises localised changes in the visual field.

Short Term Fluctuation(SF): It is a measure of the consistency of the patient's response during a test and is obtained by testing twice at ten pre-selected points.[3,6] Points with reduced sensitivity have a broader range of fluctuation[8] The time involved to collect this data is considerable and adds very little to clinical meaningfulness[8]. This calculation is deleted in the newer SITA algorithms.

Corrected Pattern Standard Deviation(CPSD): It is a measure of how much the total shape of the patient's hill of vision deviates from the shape of the hill of vision normal for the patient's age, corrected for intra-test variability (SF)[3,6]. The hill of vision may be irregular in shape because of unreliable patient responses or actual field losses. It is the most useful of the global indices.

For the MD, PSD, SF and CPSD it is not the numbers that are of real value but the indication of the statistical significance of them. If there is a very low probability of these data being normal, a probability percentage (ie. P<10%, P< 5%, P< 2%, P<0.5%) is printed beside each global index. P<10% indicates that there is a <10% chance of this being within the normal limits.8

Conclusion

HVF offers the clinician a very valuable tool to detect glaucomatous and other changes. However the full benefit for both the patient and clinician can only be derived if the various functions and facilities of the software is properly understood and utilised. This skill has become an absolute necessity for optometrists as optometrists are now playing a greater role in co-management of patients.

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Establishing Pneumoperitoneum Safely For Laparoscopic Surgeries

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INTRODUCTION:

Endoscopic surgery exploded on the scene in 1987, when Philippe Mouret performed the first laparoscopic Cholecystectomy in France. Since then there has been rapid development in this field as surgeons and patients realized the immense benefits offered by the new technique.

With every new development there are certain complications, which come to fore front as more and more procedures are conducted and in this context minimal access surgery did not lag behind. Most of the complications were encountered at the initiation of the procedure i.e. creation of the pneumoperitoneum. Some authors estimate that nearly one third of noted complications occur at this step. This article introduces the method for creating the pneumoperitoneum safely and means which can be used to reduce the complications encountered during the procedure.

(a) Why do we need a pneumoperitoneum?

In open surgery the incision is made in the abdominal wall to expose the organ and directly visualize it. In the case of Minimal Access Surgery, the surgeons view the organ with the help of telescope and an endovision camera, which projects the image on a monitor. To bye pass the barrier of the abdominal wall and to have mobility of the instruments, the anterior abdominal wall needs to be lifted away from the organs. This is termed as creation of "working space". One of the methods is to lift the abdominal wall with the help of retractors or elevation i.e. "Gasless laparoscopy". In this case the overall shape of the Abdomen is disturbed due to uneven lift and the working space is inadequate. The preferred method is to establish a pneumoperitoneum by instilling an inert gas preferably Co into the peritoneal cavity. Due to the increased pressure inside the cavity the anterior abdominal wall is lifted uniformly and an adequate working space is created.

(b). Methods for creating pneumoperitoneum.

There are different methods for creation of the pneumoperitoneum. Each method has merits and demerits as discussed below.

(i). Hasson's Method (ii) Semi open method (iii) Closed method

(i) Hasson's Method: A stab incision 1.5 to 2 cms is made in the depths of umbilicus. The tissues are dissected after elevating each facial layer with forceps until the peritoneum is entered. Stay sutures are employed to elevate the facial layers as the Hasson's Cannula is directly inserted into the Abdomen. The stay sutures are then used to secure the flanges of the cannula in place.

Even though the complication rates are similar in both the open and the closed method, the proponents of the open technique claim that with this technique the great vessel injuries are minimized. The bowel injury occurs with the same frequency as the closed method. This has been documented by Hasson himself.

(ii) Semi open technique: In this method the facial layers are dissected till the peritoneum is reached. Then the veress needle is inserted in the same way as the closed method. The only difference is that the peritoneum is entered directly under vision. This technique minimizes the possibility of preperitoneal placement of the veress needle, which can result in injuries. The stay sutures are not required to hold the cannula in place.

Another modification of the semi-open technique is to create a dissected umblical tube and entering the needle through the tube. The process adds more time to the surgical procedure and has not found favour as yet with surgeons.

(iii) Closed Method: This is the technique that is used by majority of endoscopic surgeons. The method will be discussed in detail. Factors responsible for causing injuries and means employed to overcome them will also be elucidated. In this method a small incision is made in the umbilicus. The Veress needle, developed by Veress in 1938 for creation of pneumothorax for the treatment of pulmonary tuberculosis is used to create the pneumoperitoneum. It has a spring loaded, blunt tipped obturator that advances beyond an outer sharp needle tip for creating a pneumoperitoneum. When the sharp needle is traversing the facial layers of the abdomen the blunt obturator withdraws inside it to facilitate the entry of the needle. Once the needle tip enters the peritoneum and meets no resistance the blunt tipped obturator advances automatically to cover the sharp needle tip by the spring loaded mechanism to minimize injuries to viscera and vessels.

It is essential that the patient is asked to evacuate the bladder before the procedure is started. In case the patient is to be subjected to a lower abdominal or pelvic procedure then catheterization of the bladder is more useful. If the patient is having features of distended stomach it is advisable to ask the anesthetist to put in a nasogastric tube to decompress the stomach.

Factors Affecting bowel and Vascular injuries:

1. **Anatomical Landmarks**: It is important to have an idea about the extent of Abdominal Aorta. As the umblicus is not a fixed landmark it is better to use the tops of iliac crests as fixed points. They roughly correspond to L4 vertebra and in majority of the cases (80%) the aortic bifurcation will lay within 1.25 cms of the L4 vertebra. The surgeon can then mentally form an imaginary tract well away from the Aorta.
2. **Patient position**: Having the patient supine on the table is an ideal position. If the patient is tilted (15% head down) i.e Trendelenbergs position, the Aortic bifurcation lies nearer to the entry path of veress needle thus increasing the likelihood of injuries. If the patient is placed in a reverse positions the gut and other viscera are pulled down and can get injured during needle and trocar insertion.
3. **Pre insertion testing**: It is imperative that the needle used for insufflation is checked before carrying out the procedure. If a disposable needle is used the overall results are better as a standard force is required every time which the surgeon becomes familiar with. However, using a disposable needle is costly especially for countries like India. If a reusable needle is used then it should be checked to see if the spring loaded mechanism is working properly to cover the sharp needle end every time. A syringe should also be used to check if the needle is patent. The most important aspect of the long life of the needle depends on proper cleansing of the needle after every case and removing all the tissues and debris from it. Silicone oil can also be used to keep all the components freely mobile. The needle should be sharpened after every 50 cases, as a blunt needle requires more force for penetration resulting in increased likelihood of injuries.
4. **Opiration Sites**: In majority of cases a previous inscion site can have omentum or intestines adherent to it. If the patient has a midline incision near the umbilicus an alternative site for insufflation would be at the Palmer's point (Left hypochondrium, Midclavicular line). It is important that splenomegaly is ruled out prior to inserting the needle and the stomach is decompressed by a Ryle's tube.
5. **Lifting the Anterior Abdominal Wall**: Lifting the anterior abdominal wall increases the distance between the needle and the underlying vessels. However some authors are of the view that this increases the chance of pre peritoneal insufflation due to the tenting of the peritoneum in front of the advancing needle tip.
6. **Angle of insertion**: The needle should be held at the mid shaft and not at the top. The angle of insertion should be 45" to the perpendicular line i.e towards the pelvis in the midline. Two sounds should be heard when the needle traverses the facial and the peritoneal layer if at all a degree of quietness can be achieved in the theatre. It is essential to introduce only half the length of the needle. This will be decided by the amount of anterior abdominal wall fat. If the patient is thin introduce only half the needle and if the patient is obese more length will be required to traverse the abdominal wall. With increasing experience the length required will be quite easily decided.
7. **Post insertion testing**: It is essential that before insufflation of the gas the position of the needle in the peritoneal cavity is confirmed. For this following tests are used;

   a) **Aspiration**: The needle should be aspirated. Normally nothing should be withdrawn into the syringe by aspiration. If the Veress needle has entered bowel or the vessel then gut contents or blood will be aspirated. As per individual case the surgeon may have to convert the patient or proceed with intracorporeal suturing depending upon the experience.

   b) **Saline test**: 2-3ml of saline is injected down the veress needle. It should flow in freely and nothing should be withdrawn if the needle is correctly placed in the intraperitoneal position. An alternative method is to remove the plunger of the syringe and watch whether the saline enters the peritoneal cavity on its own.

   c) **Hanging Drop Test**: In this test the valve of the veress needle is closed. A single drop of saline is placed on the barrel end of the needle. The Anterior Abdominal wall is then manually elevated and the tap opened. If the needle is intraperitoneal the negative pressure inside will cause the saline drop to flow into the shaft of the needle.

   d) **Swing test**: This test is mentioned here only to be strongly condemned. Some surgeons swing the needle from side to side intraperitoneally to check if it is free. This action can have potentially disastrous effects as the arc of the swing can turn a puncture wound by the veress needle to a major tear. As per the literature a simple puncture wound of the intestines can be managed conservatively if there is no persistent drainage from the site. If the drainage is continuous then sutures can be placed across the puncture site if the surgeon is well versed with intracorporeal knotting, otherwise it is better to convert the patient and repair the perforation under vision.

e) Pressure changes:- If the needle has entered the peritoneal cavity then the gas flow will occur in a uniform way. If the needle is extra abdominal then a higher pressure will be obtained with only a small amount of gas. In fact there might not be any gas flow or the flow might be low in such a situation. It requires around 3 liters of gas to achieve a pressure of around 12mmhg if the needle is correctly placed. It is advisable to keep a higher pressure before the first trocar entry to increase the distance between the great vessels and the abdominal wall.

CONCLUSION:-

Laparoscopic surgery is fast entering into the domain of the Surgeon, Gynecologist, Urologist etc. It is essential to have minimal possible complications during the initiation of the procedure and this can be achieved only if the laparoscopic surgeon adheres to the basic steps as outlined above. A healthy patient with minimal complication at the end of the procedure is what everyone should strive for.

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Mass Casualty Management - Our Experiences

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Abstract

Emergency Services have a statutory duty to develop a comprehensive, integrated and flexible all-risk Major Incident Plan (MID) to deal with disasters. At Sher-I-Kashmir Institute of Medical Sciences we often see ballistic trauma, Road Traffic Accidents, agricultural accidents and house collapse victims being rushed to the hospital in large numbers. To meet these challenges a Disaster Plan has been formulated. This study has been carried out to see how actually disaster plan works and to identify deficiencies. A prospective study was carried out in Accident & Emergency department for a period of one-year i.e. from July 2003 to July 2004. Although the management of patients was excellent in the hospital, staff cascading and mobilization needs to be addressed. Out-of-hospital (at site) disaster management is virtually non-existent in Kashmir. Collaboration and sharing of knowledge, information and expertise beyond the medical realm is imperative in assisting hospitals to expedite appropriate preparedness programme.

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INTRODUCTION

Sher-I-Kashmir Institute of Medical Sciences is a tertiary care hospital located in Srinagar and caters to patients from all over the valley. We often see road traffic accidents, mine blast, grenade blast and bullet injury victims being rushed to the hospital in huge numbers. To meet this challenge a disaster plan has been formulated in this hospital.

Any incident causing Casualties on a scale which threaten or cause overload of the available resources of the Emergency Medical Services (EMS) or associated system constitutes a major incident[1] Emergency Services have a statutory duty to develop a comprehensive, integrated and flexible all-risk Major incident plan (MID) for such an event[1]

WHO has defined disaster as an event; natural or man-made sudden or progressive, which impacts with such severity that the affected community has to respond taken exceptional measures[2]

According to Colin Grant, disaster is an unexpected event occurrence leading to injury or illness simultaneously to at least 30 people who will require hospital emergency treatment[3]

Disaster Management implicates different sectors at different times and the need for co-operation and co-ordination among local, state and national agencies is never more apparent than in the case of disasters, hence disaster management necessitates a multidisciplinary approach. Disaster cannot be managed in vacuum. Many agencies have to be integrated into the plan to prevent duplication and confusion[4]

A Disaster severity scale has been designed to classify certain disasters. The scale is based on the cause, the effect on the community, the size of the affected area, and the time needed for relief services to clear the area. Another system, potential injury creating event (PICE) has been developed to describe disasters. PICE is designed to identify several aspects of the disaster such as potential for additional causalities, and whether or not available resources are being overwhelmed. Knowledge and the type of injuries and illness caused by a particular disaster are essential for creating strategies to prepare for a proper distribution of necessary supplies, equipment and personnel. If polices and agreements are developed as part of disaster preparedness on international, bilateral and national levels, disaster relief may be more relevant, less chaotic and easier to estimate thus bringing improved relief to the disaster victims.[6] Emergency care providers and incident managers attempt to procure and co-ordinate resources and personnel often with inaccurate data regarding the true nature of the incident, needs and ongoing response. In this chaotic environment; new technologies in communications, and Internet, have the potential to vastly improve the emergency medical response to such mass –casualty incident disasters. In particular next generation wireless Internet and geopositioning technologies have the greatest impact on improving communications, information management and overall disaster response and emergency medical care. These technologies have applications in terms of enhancing mass –casualty field care, provider safety, field incident command, resource management, informatics support; and regional emergency department and hospital care of disaster victims[7] Recent militant activities have under scored the potential for disaster to generate large number of casualties. Few surplus resources to accommodate these casualties exist in our current health care system. Plans for "surge capacity" must thus be made to accommodate large number of patients. Surge planning should allow activation of multiple levels of capacity from the health care facility level to the tertiary level. Plans should be scalable and flexible to cope with the many types and varied timeliness of disaster. However resource limitations may require implementation of triage strategies. Facility based or "surge in place" solution maximize health care facilities capacity for patient during a disaster. When the resources are exceeded, community based solutions including the establishment of off-site hospital facilities may be implemented. Selection criteria, logistics and staffing of off-site care facilities is complex and needs to be addressed. Prepackaged trailers may be the answer Mobile hospital is one thing, which can help victims of natural disasters. After the "Orissa cyclone and the Gujarat Quake, health ministry had proposed a seven container mobile hospital equipped with latest medical facilities. During tsunami tragedy in South–east Asia, Russia sent a similar mobile hospital to Sri-Lanka, while Australia rushed a four container hospital to Indonesia. Similar mobile hospitals are operational in Europe, United States, and Newzealand. As per the specification the mobile hospital has an OT, diagnostic, post-operative ICU's, Kitchens, water purifier, generator and tents. The hospital can also be air-lifted in an air craft to distant places during an emergency. After the tsunami tragedy the process of procuring a mobile hospital in India has been expedited.

METHODOLOGY

A prospective study was carried out in the Accident and Emergency department of SKIMS for a period of one year (July 2003 to July 2004) in which management of mass casualties reporting to the hospital was studied. Only those incidents were accounted for where number of casualties reporting to the department was ten or above at one time. The management of these casualties was followed right from receiving information about the incident to their discharge of victims from the hospital. The weaker areas of disaster management plan were identified.

RESULTS

During the period of study we received a number of blast victims, road traffic accidents, bullet injury patients but the number of incidents where number of patients was ten or more than ten happened sixteen times.

Table: I: MAJOR INCIDENTS RECEIVED DURING PERIOD OF STUDY

S.No	Date	Type of incident	No of Patient	Nature of Injury	No of patients Dead
1.	4-7-2003	Blast	10	Polytrauma	01
2.	9-7-2003	Road Traffic accident	14	Polytrauma	Nil
3.	12-7-003	Blast	10	Polytrauma	Nil
4.	13-8-2003	Blast	24	Polytrauma	01 brought dead
5.	6-11-2003	Road Traffic accident	31	-do-	02
6.	22-11-003	RTA	11	-do-	01
7	26-11-003	RTA	14	Head injury	01
8.	28-11-003	RTA	10	Polytrauma	Nil
9	9-4-2004	RTA	30	-do-	Nil
10	23-05-004	RTA	12	-do-	Nil
11	12-06-004	Blast	17	-do-	Nil
12	17-06-004	Blast	10	-do-	Nil
13	3-7-2004	Blast	12	-do-	01
14	8-07-2004	RTA	24	Polytrauma	03
15	12-07-004	RTA	13	Polytrauma	One Expired
16	17-07-004	RTA	48	Polytrauma	02 Brought dead 03 died in hospital
17	19-07-004	Blast	16	Polytrauma	01 Expired.

Only at three instances prior information about the incident was given to the hospital. Message was given ten minutes to half an hour before the first patient reached Accident & Emergency. The patients were brought both directly from the site of the incident or referred from other hospitals. Usually a lot of time is wasted as the patients have been shifted to a wrong hospital e.g. a neurosurgery patient being shifted to Bone and Joint hospital. Number of patients loose their lives due to severe blood loss while on the way to the hospital.

On receipt of mass casualties or receiving information from authentic source the Resident Hospital Administrator (stationed in the Control Room of Hospital Administration) informs the members of the disaster Committee and activates the disaster plan. Alarm system is non-functional in our hospital and information is given through intercom ,telephones, (Landlines and mobiles).

Emergency cards and case sheets are arranged by medical record technologist in the triage area or even at other places of treatment in the hospital. In none of the disasters tagging of the patients was done. Tagging has been seen to save time and avoid confusion.

A separate Disaster Management ward of twenty beds; which is otherwise unstaffed and unoccupied is reserved to meet any major incident. Disaster ward is staffed only at the time of disaster. Beds are also arranged in Emergency Wards by shifting patients from Emergency Department to different specialities.

In the disaster plan of the hospital, nursing staff has to be made available to meet any disaster situation round the clock. Nursing has been divided into two groups. First group (Group I) which has to take care of disaster from 10 A.M. to 4 PM are mostly ward incharges who reside outside the Institute. Second group (Group II) which has to take care of disaster from 4 PM to 10 Am are mostly nurses who reside within the campus. In most of the instances patient reported to the hospital after 4 PM. It has been observed that staff mobilization was efficient during the major incidents which reported between 10 am and 4 PM; while as after 4 PM nursing staff had to be deployed from other specialities but none could be mobilized from second group. Main reasons for non-availability of group IInd staff was a). unwillingness of staff to report for duty b). no telephone numbers and address of staff were available c). alarm system was not functional.

Doctors usually report for duties both from Accident & Emergency and various other specialties to treat the patients. Consultants on call report for duties whenever called for; although it sometimes takes around half an hour if one has to come from outside campus.

Medical supply management is a critical part of both overall preparedness for disasters and effective relief efforts after disaster. Medical supplies for disasters are Stocked in disaster ward. There is even provision of opening emergency store as well as main Store. Standardized list of medical supplies of about fifty items has been made and are kept always available. In Emergency operation theatre usually only one O.R is working and occasionally second O.R is utilised. Number of times patients had to wait as more critical patients were being operated. However many a times main operation theatre was opened and made functional even after 4 pm.

DISCUSSION

The critical component of any disaster response is the early conduct of a proper assessment to identify urgent needs and to determine relief priorities for an affected population[9] This component of disaster management has not kept pace with other developments in emergency response and technology. Relief efforts often are inappropriate, delayed or ineffective thus contributing to increased morbidity and mortality. A stratified assessment of needs, identification of unique dangers to first responders, proactive planning; problem solving, informal horizontal and vertical communication and coping through stress management techniques are focal subject matters.[10] Many lives and limbs can be saved if first level care is organized at the disaster site. Medical care at site involves command, control, communication and coordination at the scene of the disaster as well as linkages to definitive care hospitals. A successful disaster response will depend on accurate and relevant medical intelligence and socio-geographical mapping in advance of during and after the event causing the disaster. Out-of hospital disaster management is virtually non existent in Kashmir, although the plan for the same is being laid down in the state on the pattern of having first aide teams, first aide posts and mobile teams. The transportation plan is one of the important issues in disaster management for rescue, relief survey, and assessment. The co-ordination with various authorities for requisition of transport in disaster event is a part of the plan. Unfortunately ambulance service net work is in infancy in Kashmir. Ambulances have been attached with the first aide teams (one ambulance for five first aids teams) and first aide posts (one for two first aide posts) in the plan being laid down.

For maximal efficiency hospitals need to fully coordinate the influx and transfer of patients with out of hospital rescue services as well as with other hospitals. Each hospital has to immediately deploy its operational center, which will manage and monitor the hospital resources and facilitate coordination with the relevant Institutions[11]

A study in U.S. identified over –crowded Emergency departments (84%) and lack of available beds (83%) as the most vulnerable area in mass causality management Causality volume management was never a problem during our study but if the number of casualties is huge it can tax your resources.

Disaster drills are an effective way to test hospitals preparedness for real life disasters but an extensive amount of coordination and time is necessary to have a successful drill with a large number of victims. It is not realistic to believe that a drill can be perfectly planned and practiced therefore each drill provides another opportunity to improve on past experience[13] Disaster drill was once performed in the hospital during last 3 years.

CONCLUSION

Out-of-hospital disaster management is virtually non-existent in Kashmir valley. Proper pre-event planning and mechanisms for resource co-ordination are critical to the success of a response. Although the management of patients was excellent in the hospital there is scope for improvement. Staff cascading and mobilization needs to be addressed. It needs adequate personnel consideration to enable effective functioning. Tagging of patients should be made a routine as it will avoid confusion when the number of casualties is huge. Real challenges are to provide medical care when number of causalities far exceeds capacity of hospitals. Collaboration and sharing of knowledge, information and expertise beyond the medical realm is imperative in assisting hospitals to expedite appropriate preparedness programme.

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ISLAMIC MEDICAL ETHICS: The IMANA Perspective

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5. References

APPENDIX

Websites on Islam, Islamic Medicine and Islamic Medical Ethics

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1.INTRODUCTION OF IMANA

In 1963, Muslim students studying in American colleges and universities organized themselves into an association, the Muslim Students' Association (MSA). Four years later, in 1967, American Muslim physicians did the same and formed the Islamic Medical Association of North America (IMANA). MSA transformed into the Islamic Society of North America (ISNA) and IMANA became a constituent body of ISNA. Since its inception in 1967, IMANA has dedicated itself to serving Muslim physicians, Muslim allied health care professionals, Muslim patients and the community at large on issues related to Islamic Medicine nationally and worldwide. IMANA is also a member of the international Federation of Islamic Medical Associations (FIMA). Islamic Medicine is defined as the art and science of practice of medicine by Muslim physicians and other health care providers in the service of humanity under Islamic guidelines as ordained by the divine book al-Qur'an and taught by Prophet Muhammad, peace be upon him (PBUH). IMANA has headquarters in a Chicago suburb and regional chapters in many cities of USA It is governed by a Board of Regents and an executive committee according to established by-laws. It has several operational committees including the medical ethics committee. For detailed information about IMANA, one can visit www.imana.org.

2. ISLAMIC MEDICAL ETHICS

Islam considers access to health care as a fundamental right of the individual. In medicine, there are sometimes difficult decision-making options for the patient's care. Thus, a physician at times has to decide for his /her patient in light of available knowledge, his/her experience, his/her peers and consensus of the community. In addition, a Muslim physician derives his /her conclusion from rules of Islamic laws (Shari'ah) and Islamic medical ethics. The first main principle of Islamic Medicine is the emphasis on the sanctity of human life which derives from al-Qur'an:Whosoever saves a human life, saves the life of the whole mankind.[1]The second main principle is the emphasis on seeking a cure. This derives from a saying of Prophet Muhammad (PBUH):There is no disease that God has created, except that He also has created its treatment.[2]Prophet Muhammad (PBUH), in another narration, is also reported to have said:Seek treatment, for God the Exalted did not create a disease for which He did not create a treatment, except senility.[3]This is further emphasized by the fact that three of the "Goals of the Islamic Shari'ah" are the protection and preservation of life, intellect, and progeny. The other two are the protection of property and religion.Some of the rules of Islamic medical ethics are

1) Necessity overrides prohibition; that is, if there are certain items which are Islamically prohibited, under dire necessity they can become permissible.
2) Harm has to be removed at every cost if possible.
3) Accept the lesser of the two harms if both can not be avoided.
4) Public interest overrides the individual interest.Islamic Medical Ethics also upholds the four basic principles of biomedical ethics.

These are

1) Respect for the autonomy of the patient,
2) Beneficence,
3) Nonmaleficence, and
4) Distributive Justice

Thus, when a Muslim physician is making a decision about patient care, that decision should be in the best interest of the patient, whether Muslim or non-Muslim. Further, that decision should not only be based on his/her own knowledge and experience, but as a Muslim, he/she has to consider the Islamic teaching in regards to the situation, but without imposing his/her religious views on the patient.

3. NEED FOR IMANA'S PERSPECTIVE ON ISLAMIC MEDICAL ETHICS

Muslim Physicians, Ethicists, Imams and scholars are asked questions by Muslim and non-Muslim patients, physicians and institutions as to what is Islam's position or opinion on certain medical dilemmas affecting the care and outcome of patients' illness and life. Some of these issues, such as termination of pregnancy, are time honored situations while many such as transplantation, assisted reproduction and life support are products of advances in medical technology. Since these are new issues, Muslim physicians, have dire need for recommendations from the guiding principles of the Glorious Qur'an, the tradition of Prophet Muhammad (PBUH) and opinions of past and contemporary Muslim scholars. The Qur'an says:It is not fitting for a believer, man or woman, when a matter has been decided by God, and His messenger, to have any option about their decision. If any one disobeys God and His messenger, he is indeed on a clearly wrong path.[4] Thus, IMANA decided to make a position paper, "The IMANA Perspective", to provide to those who seek our opinion and enable them to pursue further reading on their own. The positions expressed in this perspective are only suggestions on behalf of IMANA and are not to be considered Fatwa(s) (religious decrees) which are religiously binding. The members of ethics committee are not in a position to issue a Fatwa on any of the issues which we are writing on behalf of IMANA. However, from time to time, on a need basis, we do consult Muslim scholars to have their opinion. These positions will be revised from time to time as new questions arise from advances in medical technology. The position paper is available to be read and downloaded from internet at www.imana.org at no cost.

4. IMANA'S PERSPECTIVE ON IMPORTANT ETHICAL ISSUES

(A) Care of the Muslim Patient

IMANA has published a brochure entitled "Guidelines for Healthcare Providers in Caring for Muslim Patients".[5]" Those who wish to obtain a copy can call IMANA at (630) 932-0000. It is also available on line at www.imana.org, in the Health and Ethics section.All patients irrespective of their faith should be treated with human dignity and respect. Muslim physicians are advised to treat all patients with loving care as if they are members of their own family. We suggest to all health care providers that they familiarize themselves with the basic teachings of Islam and Islamic moral values. It is easier for a healthcare provider to deal with the patient if he/she understands the faith, values and culture of his/her patient. These are some of the specific guidelines for healthcare providers especially of other faith traditions for caring for their Muslim patients.

1. Muslim patients should be identified-if possible-as Muslim (or with the religion Islam) in the registration information so as to prevent any mistakes happening unintentionally in terms of violating dietary rules or privacy.
2. Their care providers should respect their modesty and privacy. Muslim patients, particularly women, may need a special gown to cover the whole body in order to avoid unnecessary exposure during physical examination. Some examinations may be done over the gown.
3. Provide Muslim patients Islamically slaughtered (Dhabiha) meat. Muslim patients should not be served any pork, pork products or alcohol in their meals. A Muslim patient's family may be allowed to bring food from home, as long as it is meeting the patient's dietary restrictions.[6]. Make it easy for Muslim patients to perform Islamic prayers if they can.
5. Inform them of their rights as a patient and encourage an Islamic living will. A sample of a living will is included. (see Section E)
6. Take time to explain test procedures and treatment. Some of the more recently immigrated Muslims may have a language problem. Muslim women can give consent for any treatment or procedure.
7. Allow their Imam (religious teacher) to visit them and pray for them. Clerics of other faith traditions can pray for or with Muslim patients with their permission, using non denominational words like God.
8. Autopsy is permitted if medically indicated or required by law.
9. Organ donation is permitted with some guidelines and is encouraged.
10. Always examine a female patient in the presence of another female (chaperon) or a female relative (except in medical emergencies). Especially for labor and delivery, if the patient's obstetrician is unavailable and upon her request, provide a female healthcare provider, if feasible. Her husband is encouraged to be present during the delivery.
11. After the death of a Muslim patient in a health care facility, allow the family and Imam to arrange for preparing the dead body for burial under Islamic guidelines. A corpse should be given the same respect and privacy as he/she was receiving while alive. Muslim relatives and friends of the dead are encouraged to stay in the room where the dead body is kept to recite Qur'an. Muslim corpses are not embalmed.

(B) Definition of Life and the Responsibility of Muslim Physicians towards Human Life

Muslims believe that God is the Creator of life and life is a gift from Him. Muslims believe that all life is sacred and must be protected. The respect for life in Islam is common for all humans, irrespective of gender, age, race, color, faith, ethnic origin or financial status.IMANA holds the position that biological life begins at conception while human life begins when ensoulment takes place. A verse from the Qur'an reads:Man We did create from a quintessence (of clay); Then We placed him as (a drop of) sperm in a place of rest, firmly fixed; Then We made the sperm into a clot of congealed blood; then of that clot We made a (fetus) lump; then we made out of that lump bones and clothed the bones with flesh; then we developed out of it another creature. So blessed be God, the best to create![7]Ensoulment is believed to occur at 40 or 120 days after fertilization, according to different schools of thought.[8] (see Section I) The right of the human fetus in Islam is similar to the rights of a mature human being, including the right to life, the right to inheritance, the right of compensation when injured by willful acts and the right to penalize assailants.IMANA extends the principles of medical ethics to the patient in a vegetative state. Until the death has been declared, the patient in a vegetative state is considered a living person and has all the rights of a living person.

(C) Definition of Death

The definition of the end of human life from the Islamic point of view has been previously discussed.[9,10] IMANA has previously published a position paper on death.[11] Permanent cessation of cardiopulmonary function, when diagnosed by a physician or a team of physicians, is considered death. The concept of brain death is necessitated when artificial means to maintain cardiopulmonary function are employed. In those situations, cortical and brain stem death, as established by specialist(s) using appropriate investigations can be used. It is the attending physician who should be responsible for making the diagnosis of death. Thus a person is considered dead when the conditions given below are met.

1. The physician has determined that after a standard examination, a person's cardiopulmonary function has come to a permanent stop.
2. A specialist physician (or physicians) has determined that after standard examination, the function of the brain, including the brain stem, has come to a permanent stop, even if some other organs may continue to show spontaneous activity.

(D) Mechanical Life Support in Terminally Ill Patients or Those in Persistent Vegetative Stateand Euthanasia

The following verses in the Glorious Qur'an are some of the verses which address issues of life and death. It is He who gives life and death and when He decides upon an affair, He says to it: Be and it is.[12]No soul can die except by God's permission, the term being fixed by writing[13]Every soul will have a taste of death. In the end, to us, shall you be brought back.[14]It is He who gives life and Who takes it away and to Him shall you be brought back.[15]Nor take life which God has made sacred-except for a just cause[16] IMANA does not believe in prolonging the misery of dying patients who are terminally ill or in a persistent vegetative state (PVS). PVS is defined as a subacute or chronic condition which usually follows severe brain injury and is characterized by normal sleep/wake pattern and total lack of cognitive function with preserved blood pressure, respiratory control, that persists for more than two months. When death becomes inevitable, as determined by a team of physicians, including critical care physicians, the patient should be allowed to die without unnecessary procedures. While all ongoing medical treatments can be continued, no further or new attempts should be made to sustain artificial life support. If the patient is on mechanical support, this can be withdrawn.[17-20] The patient should be treated with full respect, comfort measures and pain control. No attempt should be made to withhold nutrition and hydration. In such cases, if and when the feeding tube has been withdrawn, it may not be reinserted. The patient should be allowed to die peacefully and comfortably. However, no attempt should be made to enhance the dying process in patients on life support. IMANA is absolutely opposed to euthanasia and assisted suicide in terminally ill patients by healthcare providers or by patient's relatives. Suicide and euthanasia are prohibited in Islam.[18,21]

(E) Islamic Living Will and Advance Directive

IMANA recommends that all Muslims have a "Living Will", "Advance Directive" and a case manger for their care, to help physicians to know their wishes, when he or she is unable to give directions (i.e. in a coma).[20] A sample of such proposed living will is provided here which can be modified by the patient after consulting with family and /or an attorney.

(Sample)

Declaration made this ________day of ______, 20__, _____________, a Muslim of sound mind, willfully and voluntarily make known my desires that my dying shall not be artificially prolonged under the circumstances set forth below and I declare: If at any time I have an incurable injury, disease or illness certified in writing to be a terminal condition by my attending physician(s), and my attending physician has determined that the use of life-prolonging procedures would serve only to artificially prolong the dying process, I direct that such procedures be withheld or withdrawn, and that I be permitted to die naturally with only the provision of appropriate nutrition and hydration and the administration of essential medications and the performances of any medical procedures necessary (as determined by my physician) to provide me with comfort or to alleviate pain. In the absence of my ability to give direction regarding the use of life-prolonging procedures, it is my intention that this declaration be honored by my family and physician as the final expression of my legal right to refuse medical or surgical treatment and I accept the consequences of the refusal. ____________ is my case manager to enforce my living will, if I am not physically able to give direction. I do not permit autopsy of my body unless my death occurred in a suspicious manner and it is important to know the cause of death or if it is required by the court of law. It is my desire that Muslims attending my dying process ensure that Islamic Shari'ah is practiced during preparation of my body for burial and that my body be treated with grace and privacy and buried with Islamic guidelines under the directions of my Muslim family, Imam or other qualified Muslims as soon as it is feasible.

Signed _____________ Date _______
Place ______________

The declaring person has been personally known to me and I believe (him/her) to be of sound mind. I did not sign the declaring person's signature above for or at the direction of the declaring person. I am not a parent, spouse, or child of the declaring person. I am not entitled to any part of the declaring person's estate or directly financially responsible for his/her medical care. I am competent and at least eighteen (18) years of age.

Witness (to the document) _____________ Date ____________
Witness (second) _______________
Date ______________

(F) Organ Donation and Transplantation

We, at IMANA, understand that certain organs may fail in the human body while the rest of the body may still be functional. The current state of medical knowledge holds the view with scientific proof that, if the diseased organs are replaced by healthy organs and if accepted, the body machine can continue to function rather than die because of one diseased organ. Islam instructs all Muslims to save life.[1] Thus, on this basis, transplantation in general, both giving and receiving organs, is allowed for the purpose of saving life.[22-25] This has to be done under the following guidelines:

1. The medical need has to be defined.
2. The possible benefit to the patient has to be defined.
3. Consent from the donor as well as the recipient must be obtained.
4. There should be no sale of organs by any party.
5. No financial incentive to the donor or his relatives for giving his organs, but a voluntary gift may be permitted. On the other hand, there should be no cost to the family of the donor for removing the organ.
6. Any permanent harm to the donor must be avoided.
7. Transplantion of sex organs (testicles or ovaries) which would violate the sanctity of marriage is forbidden.
8. Cadaver donation is permitted but only if specifically mentioned in that person's will or in driving license. Blood Transfusion is permissible. Giving blood to or receiving blood from people of other faiths is permissible.

(G) Assisted Reproductive Technologies and Surrogacy

We believe infertility is a disease and desire for a cure by an infertile couple is natural. However, in Islam, for an action to be permissible all means of achieving that action are also to be pure. We believe in the sanctity of marriage and the importance of preserving lineage. The Qur'an says: And God has made for you mates (and companions) of your own nature, and made for you, out of them, sons and daughters and grandchildren, and provided for you sustenance of the best: will they then believe in vain things, and be ungrateful for God's favours?[26] The

Qur'an says:It is He who has created man from water: then has He established relationships of lineage and marriage: for thy Lord has power (over all things).[27]Based on these Qur'anic guidelines, IMANA holds the following positions:

1. All forms of assisted reproductive technologies (ART) are permissible between husband and wife during the span of their marriage using the husband's sperm and the wife's ovaries and uterus. No third party involvement is allowed.[22,28,29]

   We believe in the sanctity of marriage and that the death of the husband terminates the marriage contract on earth, thus frozen sperm from a deceased husband can not be used to impregnate his widow.
2. Sperm, ova and embryo donation are not permitted.
3. Additional embryos produced by IVF between husband and wife can be discarded or given for genetic research, if not to be used by the same couple for a future attempt.[22]
4. Surrogacy involving a third person is not permissible, as we believe that it exceeds the boundaries of the marriage contract and lineage.[27-32]
5. Use of fertility drugs is permissible.

   An infertile couple, if they can not find a permissible cure, can care for an orphan or someone else's child as their own within the Islamic guidelines of adoption, not the legal adoption as practiced in the United States

(H) Contraception and Sterilization

Islam prohibits sex out of wedlock

(i) **Contraception:**For married couples, contraception for several reasons, including health of the mother, social or economic reasons etc, is permitted, provided that it is practiced by mutual agreement of the husband and wife and that the method used is reversible and not harmful. Withdrawal, prophylactics, birth control pills and other hormonal methods are allowed. Contraceptive methods which can lead to abortion are not allowed.[22,31]

(ii) **Sterilization:** Sterilization, whether by vasectomy or tubal ligation, as a national policy for family planning or population control, is unlawful and should not be allowed.[22]On an individual level it is permissible provided that both husband and wife want it and:

1. When there is a significant medical contraindication to the pregnancy, for example, if there is a significant risk to the wife's health if she conceives
2. When other methods of birth control have failed or are causing significant side effects
3. When a genetic disease of the husband or wife or both poses a high risk of being transmitted to the fetus e.g. autosomal dominant or autosaul recessive conditions when both husband and wife are carriers.
4. When it is done for family planning, i.e., the husband and wife are satisfied with the number of children they have, some scholars will permit it but it is makrouh (hated).[22]

(I) **Termination of Pregnancy** (TOP)Abortion is the willful termination of pregnancy by artificial means: drugs, chemicals, mechanical or surgical procedures before the age of viability (23 menstrual weeks, i.e. calculated from the first day of the last menstrual period) for any reason. Chemical or mechanical means to prevent the formation of zygote (fertilized ovum, which marks the beginning of human life) is not considered abortion. We believe that life begins at conception and unless interrupted by disease or artificial means, the fertilized ovum will continue to grow and become a viable mature human being. However, some scholars differentiate between biological life, which starts at conception, and human life, which starts after ensoulment.7,8 The two Shaykhs (al-Bukhari and Muslim) relate on the authority of 'Abdullah ibn Mas'ud that God's Messenger (PBUH), has said:The creation of each one of you is brought in the belly of his mother for forty days, then for a similar period he is a germ cell, then for another forty days he is an embryonic lump, then an angel is sent to him and ordered to write down four words. He is told: "write down his career, his livelihood, his life duration and whether he is to be miserable or happy, and the angel breathes spirit into him"[33,34]"Further, the time of ensoulment according to this hadith is considered to be at 40 days after fertilization by some scholars, while others consider it to be at 120 days after fertilization.[8]IMANA's position on abortion[22,25,32,35,36] can be classified as follows:

1. Elective abortion of a viable fetus in a healthy mother is prohibited.
2. Abortion is permitted if continuation of pregnancy may cause the pregnant woman to die or cause serious deterioration of her health, both medical and mental, if done before 120 days after fertilization, i.e. 19 menstrual weeks.
3. Fetal congenital malformations in which abortion can be sought and is permitted are lethal malformations not compatible with extra uterine life such as bilateral renal aplasia, Trisomy 13, 18, etc. But even in these situations it is preferable to do it before the 120th day after fertilization or 19 weeks of gestation, calculated from the first day of the last menstrual period
4. In non-lethal malformations such as severe hydrocephaly, cervical meningomyelocele, Down's syndrome and unbalanced translocations, abortion may be permissible before the 120th day of conception after consulting Islamic scholars and medical experts in the field.
5. Pregnancy occurring because of rape, war crimes and incest may be a cause to seek abortion.In all

cases in which abortion is sought, the recommendation should be made by a team of Islamic scholars and medical experts in the field.Prohibition of infanticide is mentioned in several Qur'anic verses. One of these verses is:Kill not your children for fear of want: We shall provide sustenance for them as well as for you. Verily the killing of them is a great sin.[17]

(J) Genetic Engineering and Human Cloning

Genetic research and engineering to alter or delete diseased genes is allowed and genetic research using stem cells from products of miscarriages or surplus ova after IVF procedures is permissible. However, to conceive in order to abort the fetus and harvest and use its stem cells is not permissible.[38-42]We believe that each individual is born with unique qualities and genetic makeup. Islamically, a child should be born out of marriage between husband and wife and the lineage of the child should be maintained.27 Therefore, human reproductive cloning is not permitted in Islam.[43,44] Therapeutic cloning may be permissible within strict guidelines.[43](K) Care of the HIV Infected/AIDS Patient

HIV infection, in addition to being associated with homosexuality, is also known to be acquired through heterosexual acts, as well as intravenous drug use, blood transfusion and child birth. While Islam is opposed to homosexual lifestyle, promiscuity, and drug abuse, IMANA is not opposed to the care of HIV patients. In fact, it instructs Muslim physicians to care for HIV patients with the same degree of compassion as they would for other patients.[45]We do not discriminate against any patient on the basis of their lifestyle. We do advise healthcare providers to take precautions for themselves while taking care of HIV patients.

(L) Examination of Patients of the Opposite Sex

IMANA encourages but does not mandate same sex health care provider. Examination of a patient of the opposite sex is allowed in the presence of a third person of the same sex as that of the patient. In case of a minor, one of the parents' presences is desirable. Only necessary examination needs to be done. Pelvic examination must be done using gloves. Medical or nursing students may be allowed during examination of a female patient, but only with her prior consent and in the presence of a female nurse or relative.[46]

(M) **Drug Research** Biomedical research involving double blind trials, controls and the use of placebos in drug research is allowed, but the patient must be informed and consent must be taken. Worsening of the disease while in drug research, either due to placebo or an ineffective dosage of the drug, must be carefully monitored and the trial should be ended for the safety of the patient.[47]

Appendix : Websites on Islam,Islamic Medicine and Islamic Medical Ethics

1. www. Islamicmedicine.org.
2. www.islamonline.net.
3. www.islamfortoday.com
4. www.islam-usa.com.
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7. www.islamcity.org.
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Minimally invasive treatment of vesicoureteric reflux.

Vesicoureteric reflux (VUR) is a common cause of urinary tract infection in children. It is treated by either medical therapy or by various surgical modes as is deemed necessary by its symptoms and severity of grade. Grade I, II and III is usually treated by medical therapy. Surgical treatment is recommended for high-grade reflux (Grade IV and V) and also for low-grade reflux if it fails to respond to conventional medical treatment. Surgery is also recommended if there is history of breakthrough urinary tract infections despite prophylactic antibiotics, non compliance with medical treatment, failure of renal growth, presence of new scars, deterioration of renal function, reflux in girls approaching puberty and reflux associated with PUJ obstruction, ectopic ureters with duplex system, ureterocele and bladder diverticuli etc.

Injection treatment of VUR is a minimally invasive technique wherein an injectable material is positioned behind the ureter to provide a backing necessary to enable its coaptation during bladder filling and contraction.

ENT surgeons used to treat vocal cord paralysis by injecting vocal cords with polyteterafluoroethylene (PTFE). Subsequently this mode of treatment was exploited by urosurgeons to manage urinary incontinence following transurethral resection of prostate and also in Vesicoureteric reflux.[1 2]

An ideal material for injection therapy must be nonantigenic, nonallergic and noncarcinogenic. It should be durable and easy to place.

Before injection therapy for VUR, patients are given broad-spectrum antibiotics and then placed in dorsal lithotomy position. Cystoscopy is done and urteric orifices are visualized. A 19 to 22 gauge needle is advanced through the working channel. The needle tip is inserted under direct vision at 6,O clock position into the subureteric space, about 4 to 6 mm distal to the ureteric orifice. Needle is then advanced proximally and material is injected slowly till a bulge is seen, nearly obliterating the orifice. This whole process is carried out as an out patient procedure at a very low cost.

There are many substances available at present for this therapy. Polyteterafluoro ethylene (Teflon) paste was popularized to treat VUR as STING PROCEDURE but this ran into disfavor as its particles were phagocytosed by reticuloendothelial system and the resultant granulomas migrated to distant sites as lungs and brain.(3,4.)

Cross-linked bovine collagen was not approved by F.D.A for VUR as it loses its volume with time resulting in high rate of recurrence. Textured silicone macroparticles suspended in hydrogen were also used for VUR but its particles also migrated locally and distantly.

Polyvinyl alcohol (Ivalon) and injectable bioglass have also been used by some people to treat VUR.

Deflux system __ combines dextranomer micro spheres with sodium hyaluraran, a polysaccharide. These micro spheres induce local fibroblast and collagen deposition at the injection site. They disappear by one week but endogenous tissue augmentation remains.‘’

Detachable membrane A detachable self-sealing silicone balloon is used to treat Vesicoureteric reflux. The balloon is manouvered cystoscopically into the submucosa beneath the ureter and filled with hydroxyethylemethyle acrylate (HEMA) through a catheter, which is then withdrawn, leaving the membrane intact.

Autologous substances like fat, alginate and chondrocytes have also been used endoscopically to treat Vesicoureteric reflux.

Conclusion: The endoscopic treatment can be an effective alternative for VUR but a search for an ideal material still continues.

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Role of Telemedicine in Kashmir

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Introduction:

The recent past has been witness to a tremendous boom in information technology, which has transformed the very meaning of communication. You could be talking to your neighbour on the phone & "be in touch", and you could also talk to some one on the moon and still "be in touch"! Digitized information is sent from one corner of the world to another, processed and sent back ,used and incorporated at such a pace that one would have to catch his breath if he were to take just a moment & ponder about the speed at which new technologies are emerging ,data accumulating, supercomputers working overtime to solve complicated equations and men inventing all these amazing tools and technologies. These changes have affected irreversible changes in every sphere of science, philosophy & even help us better understand our religion. In all this amazing flow of electrons & zeros & ones it's not difficult to understand how medicine has benefited from all this. The latest buzzword is "Telemedicine".

Telemedicine is an umbrella term that encompasses any medical activity involving an element of distance[1]. It is defined *as "health related acts, services, and systems carried out over a distance by means of information and communication technologies.* "(WHO)

Brief History:

Historically Telemedicine traces back its origin to 1960's in Nebraska Psychiatric Instt., USA where close circuit TV cameras where used. In 1964 a 2 way link was established between this hospital and Norfolk State Hospital, 112 miles away.

NASA's efforts in Telemedicine began in the same period with monitoring of physiological parameters of astronauts.

The NASA SPACE BRIDGE in Armenia/Ufa in 1989 conducted the 1 Telemedicine program for medical consultation of victims of the earthquake in Armenia.

ISRO launched a Telemedicine project on 3 July 2002 linking G.B.Pant Hosp., Andaman & Nicobar with Sri Ramachandran Medical College, Tamil Nadu.

It was ISRO again which started Telemedicine in Kashmir in Dec 2003 with 2 centers in Srinagar: one in SMHS Hosp., Srinagar and the other in SKIMS, Soura.

Role telemedicine has played so far in Kashmir:

With expanding computer literacy, and knowledge of InfoTech, Telemedicine is slowly making its over here, the newer breed of professionals are becoming more aware of this technology and coming forward to utilize it. The chief achievements so far have been:

- **Organizing CME's:** Current telemedicine centers in SMHS & SKIMS, Soura have been regularly organizing CME's with outside the state professionals in premier institutes like AIIMS, New Delhi & APOLLO Hospital. One cannot imagine a better way of learning by hooking up with fellow colleagues all over the world and learning new avenues of diagnosis and management via video conferences, net-phone discussions, live telecasts of new surgical modalities etc. CME's via Telemedicine ,are being recognized as a new way of updating knowledge in light of their being:
    - Academically very rewarding for the participants,
    - Saving precious time of doctors and not disturbing their routine,
    - Not subjecting them to the hassles of travel.

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However there's a glitch. Low end connectivity doesn't ensure a smooth discussion and the current technology cant match the rewarding experience of a face to face discussion. A hassle free video conference would require speeds over 512 kbps which is seldom achieved here via the satellite. However in spite of this, telemedicine can still be practiced with gratifying satisfaction with the present technology at hand.[1]

- **Case Discussions:** Holding case discussions online with experts and colleagues is fast gaining, especially. those pursuing research, and this is one of the uses of Telemedicine which stands alone as having benefited patients and doctors both alike.
    - *Benefit to doctors:* patients are discussed thread bare with experts and knowledge & experience shared.
    - Benefit to patients:
        - Treatment and diagnostic modalities of the patient may be changed.
        - In case a patient is referred to a higher center, follow-up with parent hospital is better.
        - In case of a referral, patient care is more speedy in the centre to which the patient has been referred to, as the medical records are already with the new hospital, and the doctors are wiser about the particular course of action in the patient due to the previous discussion with the parent hospital.

Branches of medicine most frequently availing Telemedicine for the above purposes in Kashmir include: ophthalmology, medicine, radiology, psychiatry and dermatology.

- **Research:** some research activity is being carried out via telemedicine, but that's far from realizing its full potential. Though Telemedicine has a tremendous potential in this regard. Online discussions bring forth new opportunities, & new collaborations can be setup so that research can be done even when the parties are far apart in distance[3]. A suitable lead can be taken from the story of discovery of SARS:
    - Top clinical researchers and epidemiologists from ***11 laboratories*** in ***nine countries*** agreed to work together and share data on the disease using the internet and telemedicine technology.
    - Just within ***eight days***, researchers had identified the virus behind SARS, and in ***seven weeks*** they had zeroed in on its genetic structure.

However, as mentioned above, with all its potential Telemedicine hasn't come up very much in this field in Kashmir though the basic infrastructure is very much present.

Technical setup:

Telemedicine involves 3 main forms of technologies[4,5]

1. Store and forward (emails[6]), digitized case reports, CT/MRI scans images, etc.),

2. Face to face technology (clinical interactive services), and

3. Self monitoring & testing.

In our setup the first two forms of the technologies are available, though the first one is more commonly used[11]. Further, Telemedicine exists at both low end & high end levels in Kashmir. Two examples are cited below:

(i) A pioneering ***basic Tele-radiology project*** using the Internet to discuss Spiral CT and MRI images from the Diagnostic Imaging Research Centre of SMHS Hospital with radiologists from western countries is currently underway.

(ii) The current Telemedicine projects in GMC, Sgr. & SKIMS, Soura are linked to many other Telemedicine centers in the country, via:

* Peer to peer (P2P) channels using VSAT satellite.

* Telephone lines using ISDN.

* Broad band is being shortly introduced.

Telemedicine was started as a project by Indian Space Research Organization (ISRO) in DEC 2003. Following Telemedicine centers are currently active in J&K:

1. Deptt. of Telemedicine, SMHS Hosp., Srinagar.

2. Deptt. of Telemedicine, SKIMS, Soura.

3. Deptt. of Telemedicine, Govt. Med. Coll., Jammu.

4. Telemedicine Centers in Distt. Hospitals: Doda, Kuthwa, Kupwara, Kargil, Leh, Zanskar and Poonch.

List of National Telemedicine centers connected to SMHS Hospital, Srinagar:

1. AIIMS, New Delhi
2. AIMS, Kerala
3. Apollo Group Of Hospitals, New Delhi
4. Sri Rama Chandran Medical College, Chennai
5. SGPGI, Lucknow
6. GMC Trivandram
7. Shankar Nitralaya, Chennai
8. GB Pant Hospital, Port Blair
9. Regional Cancer Research Instt., Kerala

Hurdles to upcoming of telemedicine in Kashmir:

1. Ignorance. Many professionals are still unaware of the existence of Telemedicine in Kashmir, what could be worse—they have a glamorous misconception[1] about it, in terms of the "fancy" technology, costly investment, relevance and potentials. This would be among the most important hurdles in upcoming of Telemedicine in Kashmir. Ignorance creates the second problem as underlined below as investment & sponsorship in Telemedicine is hindered.

2. Lack of Funds. Infrastructure for creating Telemedicine, requires monetary support and a full fledged centre costs huge sums of money[5]. In absence of any credible funding on part of state govt., and lack of investment of private sector in this field, Telemedicine suffers.

3. Administrative hurdles. The third most important problem that dogs Telemedicine are the administrative hurdles. Official procedures to get clearance for accessing these centers proves very demanding with undue local resistance. For instance field doctors aren't given clearance for using these centers easily and these centers are restricted to in-patients only. Further, the main problem in telemedicine is not a lack of technology[9] rather, it is the organizational problem of knowing how to take advantage of the technology.

4. Differing Medical Standards.[10] Differing approaches & cultural differences remain an important hurdle in making this technology more widely accepted. Many doctors consider it unnecessary &/or menial to take the trouble to discuss their patients with some shaky, slowly moving figure in the monitor (because of low bandwidth), sitting thousands of miles away! In other cases the personal engagements are too pressing to spare time to pay a visit to the "Deptt. Of Telemedicine"!

5. Lack of State Government Support. This has prevented:

- Further expansion of Telemedicine centers in the peripheries,
- Upgrading the existing centers,
- Lack of wide spread publicity via local media, and
- Lack of financial backing[5]

6.Understaffing. Whereas Telemedicine centers in other parts of the country employ any where between 30 to 40 employees, over here the story ends at 1 to 2 personnel.

7.Security Hurdles. Presently allocated technology by ISRO has restricted the Telemedicine in Kashmir to national level due their *enigmatic security fears*.

8.P2P. The technology currently in use here uses only a two way communication & multiple centers can't be connected at the same time, e.g., conferences where a wider audience could take part isn't possible.

9.Low band Width. This prevents smooth conversation between the communicating parties online. Technologies like broadband, DSL, T-1 lines, Virtual Reality Interfaces are still a far cry.

10.Lack of Patient Confidence in Telemedicine. Telemedicine involves consultation of a patient with a doctor sitting many miles away from his location. In such cases many patients fail to gain confidence in this new form of doctor patient relationship, which is essential for any process of healing and medical care. This also creates problems of reimbursement[11] and responsibility towards the patients. These problems can be tackled on by patient education, assurance & proper follow-up. Several trials have in fact demonstrated patient satisfaction using the technology in a proper way.[12,13]

Future of Telemedicine in Kashmir:

Telemedicine is at the frontiers of medical technology at the present moment & it's going to change the way we practice medicine and all its branches. Professionals who don't learn to swim in its waves shall be swept away by its tide as this tide carries enormous potential for a setup like ours:

1.Emergencies: Kashmir being a zone of armed conflict, makes Telemedicine all the more importantvitals of critically injured people (which is a daily norm over here) can be transmitted to tertiary care centers from the periphery/ambulances & specialists can better guide the local doctors about the management of such cases. This way precious time lost in transit can be saved. Few precious minutes saved, can be the difference between, life and death in critically wounded patients, especially, in far flung areas who can't be speedily transported to tertiary care units. If such trauma cases can be successfully managed in our Telemedicine enabled peripheral health care centers, the daily death toll would definitely go down as more lives would be saved! Trials have shown the efficacy of telemedicine in this regard[14]

2.Rural Medicine: Poverty and the rural chores are an impediment for poor villagers against availing specialist & even basic medicare.[2]

- With Telemedicine centers planted right in the peripheries the rural medicare can be revolutionized.
- Second opinion can be sought by a local doctor from specialists in more advanced centers.
- Medical camps organized in these areas made more successful using expert advice via Telemedicine technology.
- Far flung areas like Gurez, Zanskar which remain cut off by snow for months together can benefit.

3.Interpretation of Diagnostic Tests: Tests like echocardiography, pathology slides, MRI's, CT scan films, etc can be digitized & advanced to specialists for better interpretation.[15,17]

4.Use of simple Technology: Contrary to common belief Telemedicine can exist in a practical form without resorting to sophisticated technology. Simple telephonic consultations, use of TV's, VCR's, and photographs can prove of value, esp. for guiding therapy and patient follow up[4].

5.Referral: Telemedicine can provide an excellent link between the primary, secondary and tertiary care units for better patient referral and follow up[18,19], in turn reducing patient load on the latter so overburdened by referrals from peripheries.

6.DOTS: Tuberculosis is rampant in our state & the solution is DOTS (Directly Observed Therapy Shortcourse) as recommended by the WHO. But the requirement for a health worker who would execute DOT makes it unpractical. Remote monitoring of these patients by a dedicated centre is a solution.

7.Psychiatric Disorders: PTSD, somatization, depression, anxiety are extremely prevalent in Kashmir due to ongoing turmoil. Psychiatrists being in dearth here can help by providing counseling, tele-psychotherapy & other advice as regards medications.[20-23]

8.Natural Disasters: The recently occurred disaster in Waltengu village in South Kashmir where hundreds of people were killed in snow avalanches reminds us of how disasters strike us when we are the least prepared. Existing health care simply collapses in face of toll of such a magnitude. If specialist advice in brought to the scene of mishap, much more can be accomplished by saving precious time, streamlining rescue efforts and preventing excessive stretching of the meager resources at hand. Several leading examples from the past application of this technology are in the Bhuj earthquake in Gujarat (Jan 26 2003), or Armenia earthquake (1989).

9.Epidemics: Recently occurred cholera epidemic is an eye opener of susceptibility of our populations to epidemics. Successful incorporation of remote monitoring stations which report in positive cases & progress of affected populations on therapy is Telemedicine.' & can streamline control measures, besides saving resources.

10.Training of Auxiliary Health Care Staff: like nurses, lab technicians, administrative medical officers, etc. who seldom attend any CME's or refresher courses.

11.Remote maternity clinics.

12.Remote fetal monitoring.

13.Telematic support for pediatrics.

14.Distance learning.[24]

15.Remote monitoring of chronic diseases in select patient populations.[24]

16.Telenursing.[24]

17.Telesurgery.[24]

18.Teledermatology. This is one field which renders itself well to dermatology, and can benefit much from video conferencing available here.[25]

19.Diagnosis of speech and language disorders.[26]

Recommendations to improve current Telemedicine services in Kashmir:

1. Incorporation of Telemedicine into clinical protocols.
2. Regularly organizing CME's via Telemedicine in teaching institutions to demonstrate benefit of Telemedicine to doctors and students.
3. Setting up of a proper referral system within the Telemedicine enabled hospitals in the state.
4. Upgrading existing Telemedicine network throughout the state to international level from the national level.
5. Promoting research in the field of Telemedicine & its possible applications in Kashmir.
6. Increasing government participation in Telemedicine projects and increasing gradually the allotted budget.
7. Adopt standards for quality, similar to DICOM(Digital Imaging and Communication in Medicine) of American College of Radiology, which was the The professional association to develop explicit standard for quality images in Tele-radiology(DICOM)

Conclusion:

Many regard Telemedicine in Kashmir as a fad, while it is *THE* technology of future[2,3,27,28]. There are some hardcore arguments in favor of relevance of this technology in Kashmir. These can be summarized as:

1. Telemedicine can tackle the shortage of specialists in the peripheries.
2. It can improve referral within the state health services.[29]
3. It can enhance the standard of medical care & knowledge in our state very cost effectively, though more research in this regard is needed.[12,30,31]
4. Being a mobile technology it can provide urgently needed health care in emergencies, natural disasters & epidemics.
5. It can bring Kashmir on the world map of cutting edge medical technology & research by transcending geographical barriers.
6. Even "low end" forms of the technology which are available with us, can deliver good results if properly utilized.

I would like to conclude this discussion with the following thought:

"While the basic infrastructure for Telemedicine is present in Kashmir, all that's needed is a change in the approach of our professionals, to incorporate a more open minded view towards a horizon where knowledge alone is held supreme, above personal ethos & egos just in the interest of the patient.

The real question about the future of telemedicine is not whether it is here to stay but rather the extent to which we have the foresight to fully exploit it by building lifelines across our state and beyond, and as far as the human spirit dares to dream."

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Q & A with Prof Mohammad Yousuf

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Prof. Mohammad Yousuf completed his basic medical training (MBBS) in 1966 and also postgraduate studies (Medicine 1971) from Govt. Medical College Srinagar (J&K University) Joining the faculty at GMC in 1972 as Assistant Professor. Dr. Yousuf Superannuated as Prof.& Head Deptt. Of Medicine at Govt. Medical College Srinagar in 1999. Dr Yousuf is an author of two books (1) Quarter Century Medical Research in Kashmir Published by the University of Kashmir (2) Handbook of Medical Emergencies. Having directed postgraduates from 1977-1993, he has a number of papers in reputed medical journals. Dr. Yousuf is a receipient of the best teacher award (By the Junior Doctor's Association) and the Dr. Ali Jan Memorial Award (Doctors Association of Kashmir-2003)

Q.1. Prof. Yousuf did you plan to become a doctor and after becoming one how would you comment about this profession ?

"I did not plan my career but destiny made a doctor out of me." He further says,"By temperament I get involved and I took this profession as a challenge and completed my degree in 1966. Since then I have been in this profession with full zeal." I have enjoyed interacting with patients. I believe such interactions like sharing of problems, showing concern and counseling is an essential part of any medical treatment. As the material we deal with is a human being full of expectations, sentiment, fears, joys and sorrows.

Q.2. What was the nature of your training and what were the various milestones in your professional career ?

I worked in the capacity of Junior resident under the supervision of a legendary person like Prof. Dr. Ali. Mohammad Jan. He and his team in general and his registrar in particular encouraged me to pursue for post graduate course which I did. Subsequently I worked as Registrar. Assistant Professor. Associate Professor, Professor and Chairman Department of Medicine all from 1966 to 1999.

Q.3. As a teacher are you satisfied? How did you rate and react with students and what do you consider is the essence of better teaching ?

I enjoyed my association with students. In fact students have been my teachers. I have always seen good part of them, none of them ever got rough with me and always made me feel younger. I never maintained distance with them and this added to my knowledge and wisdom. I would work very hard to teach and I think I faired well. Students would call me "***Marshal***" (Forceful) as teacher, surprisingly which is not my temperament. I am a meager human being. I would get very conscious about myself in teaching and to avoid nervousness and avoid students getting rough at me I would prepare a lecture with great effort to ensure the discipline was enforced because of my fear of indiscipline. The amount of pleasure I would derive after a lecture was enormous because from gestures of students it would appear that I did my job very well. I strongly feel that students besides being taught academics need be taught character building, that is teaching of devotion, dedication, discipline, commitment to the profession and spirit of sacrifice, all for the cause of human service. For this the teacher has to be himself an exemplary character and I always wished if I could be one.

Q.4. Prof. Yousuf did you hold any administrative position in your professional career.

I would never made a good administrator. I never volunteered for an administrative job. The reason for that could be my temperament or else my bent of mind more towards teaching and professional service.

Q.5. Prof. Yousuf what are your academic interest in the form of publications, papers and case records ?

I served in my humble way and have twelve publications to my credit. This includes two books namely Quarter Century Medical Research in Kashmir Published by University of Kashmir and Four editions of "Emergency Medicine" from 1998 to 2003. Quarter century medical research in Kashmir I wrote out of a complex I had developed with my friends working abroad with lot of research and trying to equate the same to show that we here in Govt. Medical college also do research which is basic but quite informative and revealing the disease pattern among our population in Kashmir. Emergency medical book was written by me purely with a spirit of improving patient care as I felt the young doctors at times have to take different types of instructions from the same disease. I with other colleagues have published different papers on subjects like "pattern of heart disease in Kashmir". "Ethical issues in medical Practice". "H. Pylori infection with peptic ulcer and gastric Cancer in Kashmir".

Q.6. What is your experience in post graduate teaching and what improvement you would suggest in the method of examination in general?

I have been a post graduate teacher from 1977 to 1993 and guided 14 post graduates on various subjects, some of the important being "ischemic heart disease", "Bacterial ednocarditis", "Prevalence and complications of Diabetes in Kashmir", "Pattern of Meningitis", "Pulmonary Tuberculosis and Gout". I was also postgraduate and undergraduate examiner. I understand that the best way of conducting a theory examination would be objective type questions and the practical examination should aim to examine a student on all systems. This would reflect student's true grasp on the subject.

Q.7. Are there any memorable events where you were honoured for your work ?

I feel humble to say that I got some certificates of honour and merit and two of them I got from Doctors Association. I would mention with pride about the first one that is Dr. Ali Mohammed Jan's award for the year 2003, this award I consider my exceptional achievement and honour. Second I got a best teacher award which made me feel good as my working hard on teaching was rewarded.

Q.8. Did you find any time for social work besides your professional engagement ?

My professional engagements did not allow me to participate in many social service programs however in my humble way I worked as visiting physician to Charitable Imam Hussain AS hospital Srinagar. I also voluntarily worked to provide medical advice to some poor section students of some schools.

Q.9. How long did you serve ? How do you plan your time now and what improvement would you suggest for efficient medical treatment?

I retired as professor of Medicine after serving the medical education department for 38 years. I am a person who could rightly be called as home sick as I never served abroad and I don't feel sorry about that. My present schedule is a full time physician working about six hours a day, participating in various conferences, lectures and awareness programs and in my spare time updating my book on medical emergencies. I feel as a practicing physician that any medical treatment loses its credibility if given free. I further feel that government hospitals should charge on no profit no loss basis and expenses of the treatment of patients be born by effective health insurance scheme so that poor sections of society in particular do not suffer. For disabled people or people with no job a screening committee should recommend a free treatment. Similarly raising donations, assistance from other donating agencies like Red Cross would be helpful for underdeveloped class.

Q.10. Dr. Yousuf are you satisfied with your professional career and what kept your strength and stamina on ?

I submit that there is nothing unusual or extraordinary in my work however it gives me a great pleasure to say that I have served the people of God particularly my own people. I tried to give my best and always valued my patient as better person than myself. I made every attempt not to fail myself in observing medical ethics in letter and spirit. I always shared the best time with my students who contributed to teach me life and medicine and this process is still part of my life something most dear to me. The source of my strenght and stamina has always been my wife and children who kept my candle glowing.

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